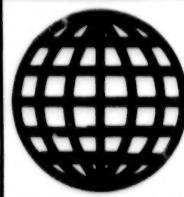


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JPRS Report

Science & Technology

***Central Eurasia:
Science & Technology Policy***

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15 April 1992

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New Russian Sciences Academy Plans Viewed

924C0446A Moscow KULTURA in Russian
No 4, 25 Jan 92 p 6

[Interview with Ye. Chelyshev: "Vivat, Academia!"]

[Text] We are not yet accustomed to the new abbreviation RAN [Russian Academy of Sciences]. However, the Russian Academy of Sciences has already been established. In the ukase issued by President B. N. Yeltsin concerning the organizing of the Russian Academy of Sciences, the word "recreate" is emphasized. The Russian Academy of Sciences is being recreated as the highest scientific institution in Russia. Is it the successor of the USSR Academy of Sciences? What institutes specializing in the humanities will become part of it? We directed these questions at Academician Yevgeniy Petrovich Chelyshev, member of the RAN presidium.

[Ye. Chelyshev] First of all I would like to share one view: we must not get involved in various kinds of dubious experiments in the race for innovation. Poorly thought-out trends under the guise of democratization, especially in science, have always turned out to be pseudo-innovation. We have had to pay bitterly for years for some of them.

As long ago as the early 1920's, when reflecting on the fates of academic science in our country, V. I. Vernadskiy wrote that the rise in scientific thought and scientific work is an inseparable and important part of the large worldwide process. The restoration of the Russian Academy must rest not only upon all the best that domestic science can be proud of, but also upon the experience of the scientific community. Therefore, all the institutes of the former USSR Academy of Sciences will become part of the Russian Academy, which will become the lawful successor of USSR Academy of Sciences and its best traditions. We believe that the humanities, first of all, are capable of opposing politics-mongering and the spiritual degradation of society.

[Interviewer] What is the Russian Academy rejecting? What is it parting from with no regrets?

[Ye. Chelyshev] The rigid ideologization of the social sciences; the promotion of active turncoats and pseudo-reformers such as Mitin, Vyshinskiy, and their ilk; the election of representatives of the party and state *nomenklatura* as academy members; the fight against "dissidence"; the hushing up or belittling of projects; repressions against scientists whose scientific views did not coincide with the officially proclaimed ones; the implanting of false postulates and stereotypes, reinforced by speculative references to the works written by the classic authors of Marxism-Leninism; the closing of access to archival documents—we are saying goodbye to this forever. We view all this today as causes of the crisis.

I might recall that for long years the prevailing view focused on the preferential development of the material-technical base. Technocratic ideology and the psychology of reducing everyone to the same level crowded out the humanitarian essence of culture and even opposed it. Everything was done to drive spirituality and the principle of the individual out of science and art. In essence, even man himself began to be viewed only as an instrument, as a social means for implementing a particular program. That principle prevailed in constructing a system of education and enlightenment, the interrelationships between the individual and society, and perceiving the national and worldwide cultural heritage. The cultural crisis, the decline in morality, social tension, and the aggravation of interethnic conflicts can be overcome only when the humanities are introduced into science, when the spiritual potential of society is restored.

[Interviewer] But that crisis, both in itself and in science, must be overcome by the very same people and the very same institutions! How do you view this situation?

[Ye. Chelyshev] Freedom from ideological *diktat* will put an end to the possibility of the free development of the social sciences. It would seem that one must not, at such time, reject that set of problems which in the recent past were considered to be prestigious or first-priority. I have in mind the socialist ideas. They are a reality not only in our country, but also throughout the world. And one would scarcely think that it is necessary to become similar to the previous ideological mentors who laid down prohibitions on the study of the religious ideology, "bourgeois culture," philosophy, history, literature, and art of Russians living abroad. The only prescription given was to reject all of that, to criticize, brand, excommunicate, and expose it. Now a field is opening up for thorough and objective scientific research.

[Interviewer] The old method with a new manual!

[Ye. Chelyshev] It is simply that many people gave in to the euphoria of the perestroika appeals, and genuinely wanted to help to find a way out of the crisis as quickly as possible. But is it possible for a pilot, however experienced he may be, sailing without a navigational chart in unfamiliar waters, literally by touch, to stay clear of all the reefs and shallows, to bring his ship to the assigned destination, all the more so in a situation when the captain and his assistants are constantly interfering in the pilot's work, but fail to heed his advice and warnings? That is why, after serving as the basis for a number of official orders and decrees, the half-baked ideas of a number of scientists proved to be still-born or fruitless. And neither the fear of their own "free-thinking" philosophy, nor the force of inertia, have been eliminated from other scientists.

[Interviewer] What, then, is the fate of those scientists who engaged for their entire life, and not without conviction, in teaching Marxist-Leninist theory, dialectical materialism, and political economics based on Marx's

"Das Kapital"? What, for example, are the propagandists of developed socialism supposed to do now? Because even the criticism of "bourgeois ideology" now must be fundamentally reexamined, if not turned topsy-turvy. It is well known that in a number of higher educational institutions, the social-political departments were simply eliminated in one fell swoop. The arguments were extremely primitive: "We cannot prepare a new course of lectures rapidly in a sufficiently professional manner."

[Ye. Chelyshev] I would add on to your question: will it be possible for these people — and there are a very large number of them — to regain their sight, to become free of the ideological *diktat*, to engage in the study of genuine, rather than fake, cultural and spiritual values? The problems of restructuring education at the higher educational institutions, and of reorienting education toward the humanities, also fall within this area.

[Interviewer] How should one answer?

[Ye. Chelyshev] This task, in my opinion, is one of the first-priority ones for the Russian Academy of Sciences. And I will say that, for those who want to remain in science, the doors opening into it are not closed! And there is a tremendous amount of work to be done.

Research that is currently taking on first-priority importance is research on the problems of the socioeconomic, demographic, and cultural life of the Russian nation. Whatever the state structure in our country may be, Russian culture will largely retain within that country its center-forming (but not self-sufficing) place, and it is precisely its condition that largely will determine both the optimistic and pessimistic forecasts of our state development. Unfortunately, for the time being, one can only desire an improvement in the study of the entire spectrum of the problems of Russian culture. The set of Russian problems has begun to be viewed as being of secondary importance. No study is being carried out, in particular, on the problems in the humanities for the Russian population living on the territory of what are now sovereign republics. Science is capable of introducing clarity into the judgments and the history of the development of interethnic relations, and of exerting an influence on policy.

The literate audience, for the time being, can be helped greatly by the might influx of statements dealing with public affairs. That stream is breaking down the obstacle that formed on the path of interpreting the past, and is beginning to open up the previously unknown pages of history. But science has not yet said its word, and the level of mass historical thought remains extremely low. This is fertile soil for various kinds of speculations, sensational situations, and fabrications that disturb the public awareness. We hope that the Russian Academy of Sciences will be able to unite and direct the intellectual forces toward the rebirth of the people's spiritual culture and historic awareness.

[Interviewer] You are an expert in Eastern studies, and Eastern studies have always remained a very important trend in the humanities. Will it occupy its place within the framework of the Russian Academy?

[Ye. Chelyshev] Obviously one should not limit that work only to the framework of the academy. We shall have to involve in it the community of scientists in various regions. Incidentally, this pertains not only to Eastern studies. It is necessary, finally, to reveal Russia's scientific potential completely. I would like to hope that the Russian Academy, recreated for the development of domestic fundamental science, will be able to oppose political extremism, will revive the previous glory of the humanities, and will make a worthy contribution to the rebirth of Russia.

Russian Academy of Sciences Elects First President

Yuriy Osipov Elected

927A0076A Moscow ROSSIYSKAYA GAZETA
in Russian 19 Dec 91 p 2

[Article by Yevgeniy Panov: "The Academy Elects a President"]

[Text] Opening the first general meeting of the Russian Academy of Sciences, Academician A. Gonchar reported that members and corresponding members of the former union academy, newly elected scientists of what is called the "initial membership" of the Russian Academy of Sciences, and associates of academic institutes, who were sent as delegates by collectives, were included in its membership. Following integration the Russian Academy of Sciences has 1,454 people, of them 362 are academicians and 716 are corresponding members.

RSFSR President B. Yeltsin addressed a message of greeting to the general meeting. He called the restoration of the Russian Academy of Sciences "an outstanding event." Science is a strategic direction of state policy, the President stressed.

After the reports on the draft of the Temporary Charter of the Russian Academy of Sciences and the results of the conference of associates of the USSR Academy of Sciences the meeting proceeded to the election of the president of the academy. Yuriy Osipov, a 55-year-old scientist from Yekaterinburg, became him.

The meeting is continuing its work. It has to approve the Temporary Charter of the Russian Academy of Sciences and to elect its presidium.

Osipov Profiled, Interviewed

927A0076B Moscow IZVESTIYA (Union edition)
in Russian 19 Dec 91 p 2

[Interview with Academician Yuriy Sergeyevich Osipov, president of the Russian Academy of Sciences, by Kim Smirnov; date and place not given: "The First President

of the Russian Academy of Sciences"—first six paragraphs are IZVESTIYA introduction; last paragraph is IZVESTIYA conclusion]

[Text] Yuriy Sergeyevich Osipov became him. He was elected on 17 December by the general meeting of the Russian Academy of Sciences in an alternative election, with 724 of 963 votes.

The Road to the Top. He is from the generation, to whose childhood the war fell. This explains much both in him and in the generation, in his desire to learn and to know, in the cult of education, intellect, and creativity, which Osipov professes to this day. He was born in Tobolsk on 7 July 1936. At the age of 17 he left his native city to enroll in the mechanics and mathematics faculty of Ural University. And since that time he connected his life with the Urals: the undergraduate years, then a defense plant, graduate studies, teaching at Ural State University, the academy's Institute of Mathematics and Mechanics. And only in recent years have there been Moscow, scientific and pedagogical work, the heading of a chair at Moscow State University, the difficult burden of academician organizer of the Russian Academy of Sciences. In 1984 he was elected a corresponding member of the USSR Academy of Sciences and in 1987 an academician.

The Handwriting in Science. In the academy directory his occupation is indicated tersely: mechanics and control processes. Osipov gained a high scientific rating by solving problems of the stability and stabilization of dynamic systems and their control. These systems can describe many real processes. For example, those connected with flight mechanics. He defended his doctoral dissertation at Leningrad University. It was devoted to differential games. This is a section of mathematics, which began to be developed very intensively in the later 1960's and early 1970's. In 1976 he was awarded the Lenin Prize.

When the project of the diversion of northern rivers to the south collapsed, in the press much was written about the mathematicians who showed the unsoundness of several calculations, on which it was based. One of these mathematicians was Osipov, who was a member of the commission of the USSR Academy of Sciences under the leadership of Academician A. Yanshin for the evaluation of the "project of the century."

One of the Paragraphs From the "Throne Speech" to Colleagues Immediately After Election: The restoration of the Russian Academy of Sciences is taking place under the difficult conditions of an about-face, the change of social ideals, and the change of economic orientations. However, it is based on deep historical roots and traditions. Respecting and valuing the past of the academy and getting a glimpse of its future, we should not allow in the complex and dramatic transitions of history artificial disruptions in the natural development of the scientific

community. Its democratization is necessary. But on an indispensable condition: Do not decrease the professional level of science.

Answers to Two Questions of IZVESTIYA.

[Smirnov] Yuriy Sergeyevich! While congratulating you on your election as president of the Russian Academy of Sciences, still I want to ask: Is it not painful that your alma mater—the USSR Academy of Sciences, in any case in the usual form—is discontinuing its existence?

[Osipov] It is painful. If you look back at the past, there were, after all, not only the bureaucratic coalescence of academic structures with the administrative system, but also the fine international brotherhood of scientists on one-sixth of the planet's territory. And Moscow academicians had pupils in Central Asia and the Caucasus, while Armenian and Ukrainian academicians had them in Leningrad and Moscow. I realize that there is no longer a unified state on this territory. But the spiritual ties of scientists did not disappear overnight.

If you look to the future, why, there awaits us there what is now occurring throughout the civilized world: Scientists, be they even the most fierce patriots of their homeland and their people, are moving freely across the face of the earth, are working where there are the most favorable conditions for research, and are uniting with those people, who are in harmony with them in scientific interests. Thus, in both the past and the future there are the international, extraterritorial unity of science and the brotherhood of scientists.

We all love our homeland, our Russia. Lest we get carried away during this difficult, transition period with the excessive "sovereignization" of science. In politics sovereignty is filled with great meaning. But should scientists here blindly follow politicians?

[Smirnov] What scientific problem would you like to submit to the first meeting of the presidium of the Russian Academy of Sciences?

[Osipov] Naturally, our first thoughts are about rescuing, preserving, and developing basic research. But I personally would be happy if we succeeded in turning sharply both the interests and the organizational work of the academy leadership in the direction of the humanization of our science. I have in mind not only more attention to the revival and liberation of the humanities, which are always the first to suffer from totalitarianism, but also the revival of the spiritual, humanistic, personal fundamental principle of all domestic science and of the moral precepts, which it brought to our days in the personalities of our heroes and martyrs and in its best scientific schools. But I am not so naive as to believe that it will be possible to do this in a short time, without overcoming the enormous inertia of the lack of spirituality, which was built up, at any rate, over the last 20-25 years and eroded the ethical foundations of our scientific community.

Well then, the scientists have elected a worthy president. And the obvious "Sverdlovsk origin" this time has nothing to do with it.

Marchuk on 'Tragedy' of Soviet Science

927A0073A Moscow PRAVDA in Russian 14 Dec 91 p 3

[Article by President of the USSR Academy of Sciences Academician G. Marchuk under the rubric "Society": "The Tragedy of Science"]

[Text] All of us as fate has willed have become not simply witnesses of, but also participants in the historical drama, in which many people—I do not exclude myself—hear tragic notes.

In what do the drama and even the tragic element of the moment lie? Today the Academy of Sciences of the Union of Soviet Socialist Republics discontinues its existence. The very Academy of Sciences that in all the storms of the century saved and protected the heart and soul of Russian science. The academy that helped to establish hundreds of scientific schools here and in the fraternal republics and achieved outstanding world results in practically all fields of knowledge.

Today many fruit-bearing branches have already been cut from it. These are the scientific communities that are linked fundamentally with the culture of the ancient civilizations of the Caucasus and Central Asia. These are the science of the fraternal Ukraine and Belorussia. Now these parts of the once unified organism of Soviet science have become the scientific communities of the sovereign states, and we should establish relations with them within the framework of international cooperation.

Soviet science revealed great effectiveness and amazing tenacity in the very complex internal political and international situation because this was an integral system. In spite of weaknesses and structural defects, we had a continuous front of scientific research.

Now the science of all the sovereign states of the former USSR, including Russia, is abruptly becoming structurally deficient. God grant that we succeed in offsetting this deficiency by integration in the world scientific community, by adding on the missing units—but this will not happen soon even under the most favorable circumstances, to which it is a long way.

But the main thing is not even this. We are going through the process of the destruction of our scientific potential as an integral system. The hopes that it is possible to finance and save if only one part of this system (for example, just basic science), are illusory. Science is a living organism, not a conglomerate of self-reacting devices. Unfortunately, neither politicians nor the scientific community have a concept of the saving of domestic science, its survival and revival. The real dramatic processes have been displaced by new ideological myths, utopian schemes, and abstract opinions.

But the essence of these processes is simple. Sectorial science has been discredited in the eyes of society as a part of the hated command system—thus far nothing has been proposed instead. But it is a matter of an enormous scientific and technical potential, 1 million scientists, many of whom worked under the conditions of the civic feat. Having modest resources, which society made available to them, these scientists often displayed an effectiveness that is inconceivable in other countries of the world. It proved to be easy to deprive sectorial science of means for existence—by the elimination of ministries.

Science at higher educational institutions, which has also lost state support and social protection, is in serious condition.

Events developed differently with respect to the Academy of Sciences, the keeper of the hearth of Russian science. Here its very structure, which took 275 years to form, and by no means 75 years, as they are trying to convince us, became the object of destruction. Under the conditions of trouble it is sufficient to crack the core, and the body will itself fall apart. This became the general method of wrecking all the basic elements of the state system.

Sixty years after 1929 a campaign against the USSR Academy of Sciences was launched under the same slogans and with nearly the same phraseology—go through today the pages of Kaganovich or Figatner, the chief of the commission for the checking of the Academy of Sciences in 1929. In the same way as the radical Stalinists, present critics first of all are accusing the academy of being undemocratic and of the fact that it "lags markedly behind the democratic processes in society."

They are replacing the perennial problem of combining democracy with the search for the scientific truth by the primitive idea of the benefit of any democracy in any situation. They are sacrificing the living, although, perhaps, sick organism to the phantom of democracy, to a concept, which they cannot properly explain. The press is speaking ironically of the fact that scientists of the USSR Academy of Sciences "have not found a place" in the concept "democratization." According to a survey, 80 percent of the scientists find it difficult to define the concept "democratization" with respect to science. And this is a sign of common sense and responsibility, for which society will still be grateful to scientists.

Yes, the scientific truth cannot be found by a vote, and in this sense the search for it, if you wish, is undemocratic. The process of scientific cognition is nearly always the opposition of the minority, or else individuals, to the majority. One should not forget how expensive the introduction of the populist concept of democracy in science by "people's academicians" like Lysenko was for our society.

Yes, the Academy of Sciences by its very type is a stable organization—precisely for this reason it was also able to

bring together and protect scientists during the most difficult periods of our history. Under the conditions of economic dislocation and the civil war our people, state, and scientists found the forces to protect science for Russia. During 1918-1919, 33 new large institutes, which became a part of the backbone of our scientific base, were opened. In 1920 in Saratov Nikolay Ivanovich Vavilov at a congress of breeders made his brilliant report on homological series, and the same year the report was published. But today these institutes are dying and the scientific publishing houses have gone bankrupt.

During those years the community of scientists accomplished a scientific and patriotic feat, providing the country with knowledge under the most difficult conditions.

For the third time during the Soviet period the Academy of Sciences was subjected to destructive blows under the guise of radical democratization. It was hateful to figures from Proletkult and to extremists from the People's Commissariat of Education, but at that time Lenin prohibited anyone whosoever "to make mischief around the academy." The Academy of Sciences incurred grave losses at the turn between the 1920's and 1930's—during the years of what is called "the great change."

During that period prominent scientists—academy president A.P. Karpinskiy, vice president A.Ye. Fersman, permanent secretary S.F. Oldenburg, and other members of the academy—with risk to life and freedom, fought for the academy and were able to preserve it, having agreed to personal sacrifices and forced compromises.

Today it is again considered possible to hurl accusations, which are general in form and absurd in essence, at entire social institutions and groups. Deliberately and grossly distorting reality, they have begun to depict the Academy of Sciences as a small "empire of evil." The generalized mythical image of the conceited, uncultured, semiliterate scientist with a deficient world outlook has been created in the press. Such a technology of creating in mass consciousness images of the enemy (in this case the Academy of Sciences) is primitive and has been studied well.

Here there is not only not a drop of real criticism, but there is also not even conceptual propaganda, but there is merely the aspiration to split the community by the most simple and crude techniques.

Demands for the resignation of the presidium have been advanced time after time. But not because it is poorly managing the affairs of the academy and is incompetent on the scientific level—these would be natural accusations for a scientific system. No! It was unfit, because it is insufficiently active in exclusively political affairs!

Recently I said in a report to the general meeting of the USSR Academy of Sciences: "If now, during the transformation of state structures, we allow the disintegration of the USSR Academy of Sciences as an integral

organism and the loss of its personnel potential, irreparable harm will be done to all science of the country. And even when the political and economic crisis has been overcome, the country will not be able to recover without its own strong science." This warning, unfortunately, did not produce any reaction of either the powers that be or the democratic public. The situation has deteriorated, and we are addressing these words with complete right to the Russian leadership.

The destruction of Soviet science will also be a serious loss for the entire world scientific community—we can say this without any conceit and the notorious messianic nuance, but on the basis of systems concepts. Only the USSR and the United States had national science with an integral scientific front—and this is a special quality.

Now society is going through a crisis. The type of state structure and the economic mechanism are changing, gaps in the continuity of social institutions and breaks in social and economic structures are visible. Everything testifies that precisely now it is advisable to use the academy as an ark for saving the core of our scientific potential. To experiment thoughtlessly and to transform the academy radically precisely now is nearsighted and, from the standpoint of long-range national interests, utterly incorrect.

Defects and shortcomings do exist in the academy, changes are necessary. But there are also objective laws of the life of complex systems, such as our academy is. It is necessary to change anything in it cautiously, because no one is capable of predicting completely the consequences of each step. And if something does go wrong, it is necessary to stop in time and, having made an analysis, to find a different solution. Those people, who are trying to impose on the complex system their own rigid and well-defined plans and themes, are naturally leading it to destruction.

Today, when the nearly 300-year journey of the Academy of Sciences of the Russian empire and the USSR is coming to an end and the new Academy of Russia, which is being formed under difficult conditions, is coming to life, it is impermissible to be cunning. And it is necessary to visualize clearly that the Russian academy, in the same way as the USSR Academy of Sciences in recent years, will be the arena of the actions of three basic forces.

The first one consists of those who tried to make the necessary changes within the framework of gradual evolutionary reforms. Those who tried to preserve the structures that are necessary for the survival of our science—today they portrayed to society as retrogrades. We did not have enough insight, ability, and steadfastness. We were too dependent on the authorities and believed in their good intentions and understanding of national problems. Posterity will make a just claim on us for this and will be correct.

Another force is the radicals, who have strong ideological support of the press. They are certain that they have the

right to destroy this "imperial formation." They probably sincerely believe that they will then build a "civilized" science of the western, for example, type. But thistles will be the first thing to grow on the ruins, but it is not a matter of cultivated plants.

And, finally, the third force is "the silent majority," on whose position the fate of our science and our country in the end will depend. I appeal to this majority of scientists. Thus far you have supported, often passively, radical projects. The time has come from the standpoint of scientific logic to evaluate the results and trends of the processes that were set into motion with your participation. They have not yet become irreversible, an opportunity to influence the situation exists.

If we look at the latest period in the life of the Academy of Sciences, any unbiased observer will note that a fairly long path was traversed without "great upheavals." After all, everything that is now being said about the dictation of the presidium is an invention, and you all are perfectly aware of this. The role of scientific councils at institutes increased, and the councils themselves became bodies that were elected by scientific associates. But, of course, there are still problems here, and they will always exist in the developing community.

The crisis of the USSR Academy of Sciences is first of all a crisis of our Union. In order to get out of it, the new state and the majority of citizens should engage in the vigorous building of a common home. While our civic duty in this difficult work is to preserve a vitally important element of society—its science. One must not allow it to be nipped in the bud, for without science one will not build a new home.

Dear colleagues! I would like to conclude this statement—the last statement of the last president of the USSR Academy of Sciences—with a look at the future. In the next few years our scientific community has to traverse a difficult path, which is full of hourly work and difficult research. Not only successes and finds, but also inevitable disappointments and losses await us on it. Will we cope with this? I think that we will. The intellectual might of our community, its inherent understanding of the interests of the people, and our permanent desire to serve the good of Russia and all the people serve as a guarantee of this.

Siberian Program Endangered by Financial, Organizational Uncertainty

927A0068A Moscow ROSSIYSKAYA GAZETA
in Russian 7 Dec 91 p 2

[Interview with Valeriy Dmitriyevich Yermikov, chief of the Main Administration of the Organization of Scientific Research of the Presidium of the Siberian Department of the USSR Academy of Sciences, by Zoya Kryakvina, under the rubric "Regional Program"; date not given (Novosibirsk): "'Siberia' Under Market Conditions"—first two paragraphs are ROSSIYSKAYA

GAZETA introduction; last three paragraphs are ROSSIYSKAYA GAZETA conclusion]

[Text] "Russia's might will adhere to Siberia"—these words of Lomonosov greet everyone who crosses the border of the Academy Campus, the border of the capital of Siberia science.

On what are scientists living today? In the presidium of the Siberian Department of the USSR Academy of Sciences Valeriy Dmitriyevich Yermikov, chief of the Main Administration of the Organization of Scientific Research, kindly agreed to answer my questions.

[Yermikov] Scientists are living with difficulty, Valeriy Dmitriyevich said. Neither Russia nor the union government has time for science. But today political instability, ethnic strife, and even remoteness from the center, Moscow, are affecting it, just as society. Science in Siberia is not at all like science in Moscow, just as science in Moscow is not at all like science in the United States. Back when "grandfather"—Academician Lavrentyev—was dealing with its organization, two tasks were made the cornerstone. The first one is the development of basic research proper in the area of the natural and social sciences. The second one is the development of research in the interests of the Siberian region. This also left a mark and brought about a distinction. All our scientific centers have BEEN organized according to the comprehensive principle with the inclusion of all the diversity of the problems on which scientists are working: from nuclear physics to archeology and ethnography.

Each center and affiliate has its own directions, problems, and research. But all together, and in the Siberian Department there are nearly 12,000 scientific associates, 36 academicians and 65 corresponding members of the USSR Academy of Sciences, more than 900 doctors of sciences, and about 6,000 candidates of science, we make up the basis of the large collective that is working on the large-scale "Siberia" Program, which was formulated at the end of the 10th Five-Year Plan. In addition to 160 academic institutes, 110 higher educational institutions, 270 sectorial scientific research institutes and design bureaus, and more than 170 production organizations are participating in it.

[Kryakvina] Valeriy Dmitriyevich, I have heard and read much about this program. Within it many discoveries have been made, fundamentally new approaches and solutions in the development of natural resources and in the development of the productive forces of Siberia have been found. What is its fate?

[Yermikov] For long years the "Siberia" Program had the status of a program of state importance and adequate attention was devoted to it. The USSR State Committee for Science and Technology allocated a little money for additional themes. The government monitored its decisions on its fulfillment. Once every five years all questions connected with scientific research were discussed at the All-Union Conference. An entire series of works was prepared, specific recommendations on the areas

and fields, toward which "Siberia" was oriented, were given. More than 40 subprograms, which are devoted to key problems of the social and ecological development of Siberia, were included in it.

"Siberia" is a regional program. But the research results are of great practical importance not only for the region. Of the large number of discoveries last year two, in the area of geology, were among the 10 most important world discoveries. Siberian geologists found petroleum in the most ancient rocks of earth—the Precambrian—where it was believed that it cannot be: Such deposits were not known in the world. The development of these already discovered deposits in Eastern Siberia and Yakutia can provide already now up to 100 million tons of petroleum a year and 50 billion cubic meters of gas.... The second world-level discovery, which was noted at an international congress in the United States, concerns the finding of diamonds in rocks that are not connected with explosion pipes. The Siberians, it can be said, also took a hand in the discovery of diamonds in Arkhangelsk Oblast, where their prospecting methods were used.

The "Siberia" Program has made 700 developments. It has yielded 7 rubles [R] per ruble of expenditures, but could have yielded R25.

[Kryakvina] Why can it not work so efficiently today?

[Yermikov] Its work is regulated by the decree of the USSR Council of Ministers "On the Development of the Siberian Department of the USSR Academy of Sciences for the Period to 2000," which was adopted in May 1990. Unfortunately, only now has the new government of Russia had time for the "Siberia" Program. For two years money was not allocated in a centralized manner for its development. It became hung up and began to crumble before our eyes. It is difficult to preserve the enormous collective, to which for more than 10 years newer and newer forces were attached. Not that long ago it united more than 700 organizations of 60 ministries and departments, many academic and sectorial institutes, subdivisions of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin and the academy of medical sciences, and higher educational institutions.

Science as before remains one of the lowest paid sectors. Cooperatives are buying standing, if it can be put this way, young lads. The most talented scientists are going abroad under contracts for a year or two. Moreover, it would be possible to welcome this, if they went to work on their own theme or on an assignment of an institute, as Academician Kapitsa, who, after returning to the Union, justified his absence by new discoveries, was sent at one time. Many are "selling themselves" for a song and are doing what the clients need. He who pays the piper calls the tune....

[Kryakvina] Valeriy Dmitriyevich, the "Siberia" Program is not working at full force, which have Siberian scientists opposed to it in return?

[Yermikov] We are searching for new forms. Thus, the Poisk temporary scientific and technical collective was set up. Its goal is the discovery of major deposits in Western Siberia. Money has been found. The USSR State Committee for Science and Technology and the RSFSR Ministry of Ecology and Natural Resources are financing Poisk, we also invested a part of our budget assets.

Scientific educational complexes are being set up together with higher educational institutions in a number of oblast centers of Siberia, they will become a mainstay of the "Siberia" Program in the regions. A portion of the interregional problems can be solved through large interregional economic associations, particularly the Sibirskoye Soglasheniye Association. And, finally, the RSFSR Government will be the client of problems of republicwide importance. Our proposals on a new concept and system of the management of the "Siberia" Program are now being studied in the apparatus of the RSFSR Government and in the near future will be considered in the Commission for Scientific and Technical Progress. In recent governmental documents, unfortunately, extremely little was said about science, the emphasis is placed on the fact that it should change over to cost recovery. But this is inapplicable to basic science. Basic research and theory are no less important, if not more important. And although no one knows in advance what the outcome will be, when the return will begin, and how large it will be, the expenditures on basic science are justified.

[Kryakvina] Valeriy Dmitriyevich, the establishment of the Siberian Department of the USSR Academy of Sciences was a very profitable matter. Siberian scientists have already covered the expenditures more than once. Of course, not everything discovered is now being adopted by industry and the economy. But the Academy Campus is also shouldering another, enormously important job. At its experimental laboratories and plants fundamentally new approaches are being "road tested," technologies are being tried out, and the personnel are increasing.

Yes, we have an unusual and most inexpensive university. It has only walls. Everything else is at scientific research institutes. The level of teaching is very high, leading academicians and corresponding members of the USSR Academy of Sciences give lectures. There are also unusual courses. An evening philosophy and theology faculty, where scientists from Finland and England have given lectures, was recently opened. They hire our graduates wherever you like—the ability to think, to take a nontraditional approach to a problem, and to solve it systematically guarantees them a big demand.

[Kryakvina] Abroad as well?

[Yermikov] Of course.

[Kryakvina] But now there is the opportunity to take part in work abroad in another way, without leaving the country. I have in mind the establishment of international research centers.

[Yermikov] Absolutely correct. The ever increasing complexity of the problems, which are arising for mankind, and the high cost of research are compelling scientists to cooperate and to coordinate research within international programs. Over the course of 30 years of development our Siberian Department of the USSR Academy of Sciences has become well known to the international scientific community. At the union level they supported our proposal to organize on the basis of the best institutes research centers which fundamentally supplement the infrastructure of international scientific cooperation: the Baykal Ecological Research Center, the center for closed ecosystems in Krasnoyarsk, the tomographic research center in Novosibirsk, the center for solar-terrestrial physics in Irkutsk and Yakutsk. The Siberian Department supplemented the outlined program with the Altayskiy Center of Humanities and Biosphere Research.

...A few words about the pulse, the spirit of the city. A new person, and in just a day, of course, has time to make out only the facades of the multistory institutes. But even in one day it is possible to sense that scientists are interesting people.

Aleksandr Nikolayevich Semin, deputy chairman of the Sovetskiy Rayon Soviet, was my guide through the Academy Campus. We visited Prospekt Lavrentyeva and Prospekt Nauki, along both sides of which the buildings of institutes are arranged, and the residential zone on Morskoy Prospekt, Prospekt Stroiteley, and streets with the romantic names Vesennaya and Zolotaya dolina and looked at the House of Scientists, where international symposiums are held and where scientists come without formality to mingle. We visited the museum home of the founder of now the largest scientific center in the eastern part of the country, M.A. Lavrentyev, and even a small operating church, which is comfortably situated among the pines, not far from the research institutes. The almost new wooden church, which smells of pitch, is also a sign of the times. Patriarch of Holy Russia Aleksey visited here and blessed the construction site of a stone church. Back some five years ago it seemed that one was not supposed to talk about this, but now the doors of the church have been opened: Come in, take in spirituality and purity, build up reserves of energy of the spirit.

A person feels well in the vicinity of the church. He has rested in spirit and again sets to work....

Zakharov Observations on Reorganizing Academy Science

927A0065A Moscow *IZVESTIYA* in Russian 30 Nov 91 p 10

[Article by A. Zakharov, co-chairman of the organizing committee for making preparations to set up a council of

scientists of the USSR Academy of Sciences: "The Academy of Sciences Has Changed Its Name, Will It Change Its Substance?"]

[Text] The controversies about the future of the Academy that have been raging recently in the pages of the press have involved primarily the fate of the community of academicians and its name. They have sidestepped the fate of the institutes in which the science itself is done. And that gives serious pause for concern.

The system of Academy institutes is on the verge of collapse. The supply of instruments and materials has, in fact, come to a halt. The development of the social base, to include housing construction, has been suspended. There are no more subscriptions to foreign science journals, which means isolation from world science. At the same time, a number of scientific research institutes (in the finest traditions of nomenclatural privatization!) are transferring property to commercial structures.

Science councils are powerless to interfere: they are (according to the current Standard Institute Charter) merely consulting bodies serving the director. The salaries of scientists have fallen below the critical point, while researchers who go abroad are paid twice as much in dollars, even from the very beginning, as they get here in rubles. The massive brain drain is dooming our country to the role of a raw materials source and could become a genuine national tragedy.

The leadership of the Academy provided no protective measures whatsoever for the transition period to a market, pinning its hopes on government assistance, even though the ministry system of distribution that had developed in past years in the USSR Academy of Sciences is clearly slipping. But the institutes aren't allowed to be independent.

World experience suggests that a system of numerous funds needs to be created, along with an advanced, professional system of experts. Any science collective, as well as any individual scientist, should have the right to submit a project for a competition involving financed work (grants) regardless of what the predilections of the administration are. Once the researcher has gotten a grant, he allots some of it to the support of his institute, which makes the winning of the competition mutually beneficial to the researcher and the institute. But in the context of the current restrictions, such a system is impossible.

To this day, the higher body governing the Academy and its institutes is the General Assembly of Academicians. The science collectives of the institutes, however, cannot take part in the elections of the academicians. The General Assembly elects the presidium (without any input from the institutes), which hires (without any input from the institutes) the management apparatus of the institutes. We have a paradox in which the most enlightened, most trained segment of the population of the country is deprived of the opportunity of self-government. A kolkhoznik can become a farmer, a

worker can buy out production, but the scientist is doomed to carrying out the directives of the administration.

It is about time we listened to what the scientists have to say. All suggestions concerning the reorganization of the Academy are being funneled into the organizing committee in charge of preparations for setting up a council of scientists of Academy institutes. Several drafts of reforms have been developed. It is being suggested that, without fracturing the current structures, an Association of Academy Institutes be created, with its higher organ — a congress of scientists — being elected by institute research associates. That would satisfy entirely the content of the RSFSR presidential ukase, which specifies a mechanism of formation of the Academy, formation that must take place on the basis of the recommendations of three groups: the General Assembly of Academicians, the Assembly of Founders of the Russian Academy of Sciences, and the COUNCIL OF SCIENTISTS OF ACADEMY INSTITUTES.

The organizing committee for that council exists. Five working groups have been created to develop documents involving aspects of the organization of basic science. Those groups are open to suggestions from anyone who has constructive ideas (the organizing committee's telephone number is 135-87-85). We remind everyone that the elections of the delegates to the council are being held by secret ballot in which all institute research associates who are doing science work are taking part.

Commentary on Yeltsin Decree on Academies of Sciences

927A0065B Moscow ROSSIYSKAYA GAZETA
in Russian 27 Nov 91 p 1

[Article by Yevgeniy Panov, under the rubric "Commentary": "First the Elections, Then the Merging"; first paragraph is source introduction]

[Text] A ukase of the RSFSR president has announced the reorganization of the Russian Academy of Sciences. Its membership will consist of all the USSR Academy of Sciences academicians and corresponding members, as well as individuals newly elected to the membership of the Russian Academy of Sciences.

The elections will take place 3-7 December. They will complete work that was started in 1990 as a result of a decree by the RSFSR Supreme Soviet regarding the manner in which the Russian Academy of Sciences was to be formed and how its activity was to be organized, work that was considerably complicated by the 10 October decision of the General Assembly of the USSR Academy of Sciences to restore the name and status of the Russian Academy of Sciences.

That decision made it necessary to settle on one of the following variations. Either the Union academy would simply be converted into the Russian academy, in which case the need to form some sort of new structure would

then become superfluous. Or a Russian academy would be created, and the two academies would exist simultaneously in Russia, in which case either the "big" academy would not have the support of the state and would gradually die out, or — in a more abrupt fate — it would, like many Union bodies, be abolished, or it would merge with the new academy to form a single Russian academy.

The last variation was chosen. As the most sensible one. By no means did all the scholars, especially those who had had big hopes for an independent Russian Academy of Sciences, agree with the choice. That choice was truly not without controversy. Because the USSR Academy of Sciences is a beaureaucratic body, and as a result of the merge, the Russian Academy of Science could inherit what are not the best traits of a "ministry of science." Which is why the integration was not accepted right away in the Russian corridors of power.

But...the USSR Academy of Sciences is not just the presidium — it also consists of renowned institutes and science centers. It's not just the "generals" — it's also the army of "lieutenants," who are the ones doing the science. (In the presidential ukase, they were called the "other scientific associates of the institutions of the academy.") Their qualifications and standing in the world are high. They are listed on the international intellectual exchange and are being happily bought up by the West. There has also been a "brain drain" to developing countries. In recent times, some 4,500 scientists have left Russia. Maybe they haven't left forever, but it's today that their brains are needed. If a few thousand more "lieutenants" leave, the lofty talk about a r-birth will have to cease. And they will leave, if academy science collapses because of an internecine struggle between scientists. A struggle between the academies would be the last step toward collapse.

And so, the decision to integrate the academies was legalized by the presidential ukase. The current questions of the union fall to the coordinating commission that has its authority from the presidium of the RSFSR Supreme Soviet. The commission consists of representatives of the USSR Academy of Sciences, the organizing committee for determining the initial membership of the Russian Academy of Sciences, and the Supreme Soviet. The commission has already met, and it has drawn up the basic principles for the integration. Plans call for the convocation of the general assembly of the combined Russian Academy of Sciences 18-20 December, for discussing the organizational structure of the academy, the elections of its governing bodies, and the adoption of a new charter.

But first, the elections of the initial members of the Russian Academy of Sciences will take place. A total of 1,739 nominations have been submitted for the 160 academician vacancies. In the opinion of Vladimir Shorin, the chairman of the RSFSR Supreme Soviet Committee for Science, the qualifications of the candidates are very strong. For example, among them are

nearly 100 USSR Academy of Sciences corresponding members, many of whom missed being elected to the "big" academy by just a few votes. That convincingly refutes the conjecture about the "inferior quality" of the Russian Academy of Sciences.

As with the Union academy (it was called "technocratic"), representatives of the precise sciences will clearly predominate. A total of 292 nominations have been submitted to the section of mathematics, mechanics, and information science to fill the 25 vacancies; 208 have been submitted to the section of humanitarian and social sciences to fill 30 vacancies. Seeking to become academicians are 128 chemists or chemical engineers, 87 nuclear physicists, and 60 mathematicians, but only 14 sociologists, eight historians, and seven art historians. Considering themselves worthy of the title "academician" are only 28 individuals specializing in the economic mechanism and free enterprise. Those figures graphically reflect the system of preferences and values that has come about in society.

And this fact gives pause for thought: among the candidates for the section of engineering sciences — that's 341 individuals competing for 30 vacancies — many are rectors of VUZs or directors of scientific research institutes or plants. The Union academy is called not only an "academy of technocrats," but also an "academy of administrators." Of course, organizers are needed in science. But the contribution they make and their place in the hierarchy should be assessed differently than that of researchers, and the representation of organizers in the academy should be carefully metered, if not strictly limited. A numerical perponderance of administrators makes the academy a "ministry of science." The organizing committee called upon the electors to "raise the rod" a little higher. But is it really not obvious that the director of a well-known scientific research institute may be at one level, whereas an individual who has made world-class discoveries — but has no management rank — is at a completely different level? Which level is better? The electors won't have an easy job.

A little about the electors, by the way. There are 294 of them, in all. Fifty of them represent the USSR Academy of Sciences, 23 represent the organizing committee for setting up the Russian Academy of Sciences, and 208 come from regional organizing committees. The electors represent educational, academy, and sector institutes in a 3:2:1 ratio. The lion's share of electors from VUZs come from regional institutes. And that's understandable: it's there that the VUZs are the main strongholds of science. Will provincial professors be able to evaluate scientists from Moscow or Petersburg fairly? Will they be able to withstand the pressure applied by the more venerable Union academicians and members of the Russian Academy of Sciences organizing committee? And there's likely to be pressure — people have their prejudices.

The procedure for the elections is as controversial as the integration itself is. But it's too late to change anything

now. What has to be done now is to keep the possible costs to a minimum and to avoid implanting the old defects of the USSR Academy of Sciences into the not-yet-strong tissue of the newborn scientific community. And that, we reiterate, could happen.

The basis for that lies in a concept proposed at one time by the RSFSR Supreme Soviet Committee for Science. The scientific public of Russia met it with ambivalence. The scientists didn't want the academy that was being created to be too officious, too much a "court" academy, and they were on the lookout for any clear-cut tendency to serve authority. Those accentuations were muffled in the documents of the coordinating commission. But it's a fact that the Russian Academy of Sciences will be an official structure. And if the former arrangement for distributing budgetary funds is preserved, then the arrangement underlying the "scientific substantiation" of governing decisions is preserved. The Union academy, to its shame, tried more than once to prove that two plus two equals five. Does that same sorry fate await the Russian academy? Neither the status of a self-governed organization, nor the most well-thought-out charter, nor irreproachable principles will help it. They are outweighed by a simple, powerful principle that is as old as time: he who pays the piper, calls the tune. And the authorities are paying the piper. And an academy that serves the authorities becomes a ministry of science.

And the organizers were warned of that danger. As they were warned, moreover, of many other dangers. At congresses of scientists in Moscow, St. Petersburg, and Yekaterinburg, as well as at others. But, in vain. The voice of the "lieutenants" will again resound at the council of academy institutes that is planned for 10 December. But this time, it will be heard. According to the ukase, the opinion of those who are doing the science themselves will be taken into consideration as the formation of the Russian Academy of Sciences comes to completion.

Malyshev Interviewed on Continuing National Science Effort

*927A0053A Moscow RABOCHAYA TRIBUNA
in Russian 5 Nov 91 p 2*

[Interview with Chairman of the RSFSR State Committee for Science and the Higher School Nikolay Grigoryevich Malyshev, by RABOCHAYA TRIBUNA correspondent Vladimir Lagovskiy; date and place not given: "There Is No Poorer a Relative Than Science. How Long?" — first paragraph is RABOCHAYA TRIBUNA introduction]

[Text] Chairman of the RSFSR State Committee for Science and the Higher School Nikolay Malyshev answers the questions of RABOCHAYA TRIBUNA.

[Malyshev] The decree concerning the fact that the USSR State Committee for Science and Technology, the Higher Certification Commission, and the USSR State

Committee for Public Education are being transferred to our jurisdiction, was recently signed. A powerful team has been put together. We will work and first of all will rouse the regions.

[Lagovskiy] But will routine not bore one to tears? Time is now critical: It is necessary to lay in potatoes, to buy grain, to heat cities....

[Malyshev] Yes, today many people do not have time for science, just as, incidentally, yesterday. And still, I believe, the government and the President should agree to the formulation of major national programs that are of strategic importance. We must not fall behind in space, defense, biotechnology, and alternative power engineering. It is imperative to make a market in energy resource conservation. For the present situation here is simply awful.

Recently Boris Nikolayevich Yeltsin and I came to the understanding that we will prepare for him proposals on such national programs. Their peculiarities are: a visible near-term result and the prospect of "pulling" society out of the stagnation, in which it is now.

[Lagovskiy] Somehow it has become the custom that in the latter matter in our country there is reliance on economists. They, it is said, will take us where it is necessary.

[Malyshev] I, for one, repeatedly said to Yavlinskiy and to other economists of ours, who are proposing all kinds of programs of recovery from the crisis: What you have written may be interesting. But none of you, including Abalkin, who was very nearly the first to set to work on this matter, said even a word about scientific and technical progress and education. No one showed what there will be, if we do not deal with this in earnest. What will there be in two years, when due to wretched technology enterprises shut down? Who as a result will raise labor productivity and how? Should we create the conditions for the development and introduction of new technologies? In the end this is the whole crux of the matter. The rest is decay, including the ingenious withdrawals that are aimed supposedly at the strengthening of the ruble.

That is why we are also preparing in a hurry a report for the President—proposals with an analysis and forecast—what it is necessary to do without delay in the sphere of science and scientific and technical progress in Russia.

[Lagovskiy] You will agree, it will be difficult to change something until a package of laws on science has been passed.

[Malyshev] How could I not agree? But, alas, the members of parliament are delaying. But one way or another they cannot avoid the vital questions of intellectual property and the financing of science. It will not work. Any state is obliged to have a mechanism of investment in important scientific problems. And we are all the more so. Because science is one of our few national possessions. Even though they criticize me in the West, I

will say: Russia, England, France, and the United States properly have basic science.

[Lagovskiy] But what about Japan?

[Malyshev] This country is well known for the astonishing ability to implement basic achievements, including ours. Thus, should we not employ brains? Now we are obliged to do everything in order to maintain them—to maintain science so that scientists would not flee the country. We talked a lot on this theme with the President and came to the conclusion: It is possible to preserve our potential. But for this it is necessary to eliminate all the bureaucratic barriers in the work of scientists.

[Lagovskiy] For the present scientists, particularly those who are working in the basic directions, are justly complaining of poverty.

[Malyshev] Should we artificially increase the wage? It does not work. And, besides, this is not the solution. I will repeat and, perhaps, not just once more: A legislative base, on the basis of which a person will be able to dispose of his own intellectual property as he considers necessary, is needed. Pardon the bureaucratic phrase, but this is the main thing for the increase of well-being. Then we should exempt the scientist from the norms of behavior, to which our entire society for the present is publicly or privately subject. He simply needs to have the opportunity to combine as many positions as he wishes and to earn any wage without restrictions. If he deserved a million, let him receive it, if he did nothing, let him receive nothing. It is necessary to allow the scientist to work under contract with any country of the world—let him earn currency and use it as he wishes. Put more simply, freedom, which is characteristic of any civilized country, is needed.

[Lagovskiy] But what is to be done with secrets? From my work as a journalist I know: Now hardly anyone cares about them. Nearly everyone is prepared "to bare their soul" to the West. Will we not get burnt?

[Malyshev] Alas, license has also taken hold of this area. From one extreme—total bans—we have moved to the other—naive openness. And not only with respect to the West. Cooperatives and small enterprises, which are shamelessly beginning to sell the property of others as their own, are nearly always being spun off from higher educational institutions and scientific research institutes. People are going abroad to work and feel wonderful there, exploiting, in essence, the accumulations of their former collectives. In the West this problem is solved quite simply: It is necessary to obtain in one's own country a certificate which makes it possible to transfer some knowledge. There is no trace of this in our country. No one keeps track of intellectual property. But why? All because there are no laws.

[Lagovskiy] The conclusion is clear. But let us assume that the time will come, when all scientists will obtain—

let us call it the following: civilized freedom. Will everyone be able to make a living by means of it? Very likely not.

[Malyshev] When the market begins to call for knowledge, it will also begin to pay well for it. At the same time it will "strain off" real scientists. Those who are capable of earning with their knowledge. The others, apparently, will have to change their field of activity.

[Lagovskiy] This process has most likely already begun. The tone of the statements of some representatives of science has changed for some reason. Earlier they said that it is necessary to close nearly half of all scientific research institutes and design bureaus, there, they said, there are loafers and they are eating through the people's money to no purpose. Now it is a different matter: Appeals to protect nearly every scientist and specialist, who is being cut, are being heard more and more loudly.

[Malyshev] What is there to be surprised at? The traditional practice of financing not jobs, but signs is very convenient for many people. Assets were drummed up for the registered staff of the institution. Administrators were always able to prove that they needed 2 million, and not 1 million. Here no one kept track any more of the results. The performers, to put it mildly, did not give a damn about them. The money had already been divided. And anyhow they could not earn more. But given such a situation it is naive to believe that people who have property will strive for a market. In short, we are running again into the former barrier.

[Lagovskiy] For some reason I do not understand our members of parliament. The discussion about property has been going on for more than one year. Many even agree that it would also be necessary to begin the changes with this matter. But no one has gone farther than words. Is this, perhaps, advantageous to someone?

[Malyshev] Similar thoughts have also visited me. It is probably possible to understand why the deputy corps only just got out the very combination of words "private property." This is a revolution in consciousness, in the life of the entire country. On the other hand, the very category is still comprehensible to far from everyone. While intellectual property in general appears as some abstraction. And since that is so, it may also wait. There are, they say, matters that are a little more important.

[Lagovskiy] It is turning out to be interesting. We now have state, but, in essence, nobody's property, as if with mussels it has become overgrown with all kinds of pseudomarket structures. And here exchanges, associations, and cooperatives are ruthlessly milking this very property. And as a result they are playing on the difference of state and independent prices, on the shortage. It is that way everywhere—from production to science. Mainly new commercial formations are getting rich. Collectives all the same are on the rocks. It turns out that laws, which put everyone in his place, are disadvantageous for people who are earning millions on legal license.

[Malyshev] Do you mean to say that the independent market, which now exists, was specially designed?

[Lagovskiy] Perhaps, not specially. But the people, who are connected with it in one way or another, are in no hurry to change the situation in favor of the law. And, of course, they are holding on to it.

[Malyshev] I also do not see among the members of parliament a malicious intention. A transition process is under way. It is necessary, if you wish, to go through it. Perhaps, to experience the wavering about the once steady state. Not simply to overcome the inertia....

But while looking around at the West and being astounded by the speed of their reforms, one must not forget that they came to pass under different conditions. There no one ever took property away. There people always obeyed the laws.

[Lagovskiy] Let us digress a little from property. What do you think, Nikolay Grigoryevich, will there be the natural selection of real scientists or will coercive measures be required?

[Malyshev] I am opposed to coercion in principle. But I am in favor of collectives beginning to fight for state orders with regard to scientific and technical programs.

[Lagovskiy] But who are the judges? Pardon me for the quotation, but I will cite another one: How can one pass over a relative, especially when dividing the budget?

[Malyshev] For the present we, of course, cannot get away from lobbying and protectionism. We will not get rid of corrupt structures at once. Moreover, the powerful academy network also exists. It will protect its own interests. Academicians direct the institutes and are in the government and parliament. They have pupils.... Everything is arranged. And the expert councils are made up not of Martians, but of people who to one degree or another are dependent and bound.

But we also recognize another thing. If a person is the competent owner of his intellectual property, no one will be able to take it away. So? But it is all the same to market structures with whom they deal. The main thing is that this would be a person or collective, which will be able to complete the work. Thus, the market will also be a judge. While we, in turn, are already now establishing innovation funds and banks, which are oriented toward the financing of scientific programs.

[Lagovskiy] The last, perhaps, main question. We are faced with a fait accompli: The Union has disintegrated. What awaits science in this situation? Will we hide it among our sovereign corners or will we be able to live like the civilized world—in mutually advantageous cooperation?

[Malyshev] Nowhere in the world is there or will there be the sovereignization of science. We also should not have it. We are doomed to live together. But, apparently, not everyone will arrive at this idea simultaneously. Time

will be needed in order to understand: We have a common economic and human space, which was created over the centuries. Therefore, in my opinion, the disintegration of science is a temporary phenomenon. And how long it will drag on depends in many respects on Russia.

In order not to wait long, to start with we should advance our own programs. And to declare that they are open for everyone. And then, I am certain, joint programs and joint interest will appear. For there are problems that a small republic will not be able to solve itself as much as it would like to. There are problems that Russia alone also cannot handle. Thus we will cooperate on a mutually advantageous basis. While this, in turn, should lead to the establishment of an interstate council and a fund for joint financing. In other words, having plunged into the sea of problems and having sailed under our own flags, all of us in one way or another will gather together. Thus, while parting for a while, it is important not to do a lot of silly things. So that we would not be ashamed to return later.

Planned Merger of Two Russian Academies of Sciences Criticized

92TA0053B Moscow *IZVESTIYA* (Morning edition)
in Russian 9 Nov 91 p 2

[Letter to the editor under the rubric "A Letter to *IZVESTIYA*": "The More Academicians There Are, the Farther One Is From Science"]

[Text] In July 1990 the RSFSR Supreme Soviet adopted a decree on the procedure of the formation and the organization of the activity of the RSFSR Academy of Sciences (RAN). This decision, as was noted in the speech of B. Yeltsin at the last Congress of RSFSR People's Deputies, was made in a different political situation than the present one. The center was "pressing," and Russia was forced to defend its sovereignty.

Now hardly anything remains of the union structures. On 10 October the General Meeting of the USSR Academy of Sciences made the decision, which was supported by the RSFSR President, on the return to it of the name of the Russian Academy of Sciences. Inasmuch as more than 95 percent of the scientific institutions of the former USSR Academy of Sciences are on the territory of Russia and come under the effect of the ukases on the transfer of all the institutions, which are located on the territory of the RSFSR, to the jurisdiction of Russia, now the USSR Academy of Sciences is the Russian Academy of Sciences both formally and in essence.

It is clear that in the present situation the RSFSR Supreme Soviet would not be able to make a decision on the establishment of another Russian Academy of Sciences—Russia does not need two academies. However, last year's decision of the Russian parliament is in force, which can lead to very undesirable consequences.

The organizing committee for the formation of the RSFSR Academy of Sciences was set by the Committee of the RSFSR Supreme Soviet for Science and Public Education. According to the Statute on Elections the initial members of the RSFSR Academy of Sciences are elected by the general meeting of electors. The bulk of the electors are appointed by the regional organizing committees, about a third are also appointed by the central organizing committee and the presidium of the USSR Academy of Sciences. Thus far it is unknown, of whom the 12 regional committees consist and by whom they were formed. Such an election procedure can lead to sad consequences. For the "principle of competence" is the cornerstone in the management of science.

If we turn to history, all the major academies of the world were organized by scientists, whose authority was indisputable for contemporaries. The Imperial Saint Petersburg Academy was formed by Petr I and Yekaterina I with the assistance of the most prominent scientist of that time—German mathematician, physicist, and philosopher C. Wolff, the teacher of M.V. Lomonosov. On his advice well-known mathematicians, the Bernoulli brothers and the great Euler, were hired to it. The first Italian academy (Academia deli Lincei) was organized by Leonardo da Vinci, the first German academy was organized by Leibnitz, the first academy of sciences in the United States was organized by Franklin. In our times the organization of the Siberian Department of the USSR Academy of Sciences was entrusted to three prominent scientists—M.A. Lavrentyev, S.L. Sobolev, and S.A. Khristianovich. By tradition the new members of academies are elected by the academicians themselves—thus the above-mentioned principle of competence is realized. Deviation from it when forming the RSFSR Academy of Sciences will inevitably lead to its insufficiently high level and to the devaluation of the title of Russian academician.

On 10 October the General Meeting of the USSR Academy of Sciences made the decision on the integration of the Academy of Sciences with the RSFSR Academy of Sciences, which is being established and the members of which it is proposed to elect in December of this year. The explanation of this strange merger consists in the fears of academicians that under the conditions of the collapse of union structures the financing of science on the territory of Russia will be directed by the RSFSR Supreme Soviet through the channels of the RSFSR Academy of Sciences, which has been formed by it—and the USSR Academy of Sciences will be left without money.

Whatever the reasons, it is possible to compare such "integration" with the merging of the "Communist Academy" with the USSR Academy of Sciences in 1936, the consequences of which are being felt to this day. It is not enough that the scientific level of the academy will decrease, its international prestige will also decline.

Let us note that after the establishment of the republic academies the USSR Academy of Sciences aimed its

basic efforts at the development of science namely in Russia. Scientific centers of the regional departments of the Academy of Sciences were established in Siberia, the Urals, and the Far East, as well as in Nizhniy Novgorod, Saratov, and Kazan and on the Kola Peninsula. The Academy of Sciences took a basic part in the establishment of world-level basic research centers in Dubna, Pushchino, and Serpukhov. Owing namely to it "science set off through Russia."

Thus, owing to the fundamentally changed situation the arguments in favor of the establishment of another Russian Academy of Sciences are completely losing validity. In our conviction, the repeal of the decree, which has lost topicality, would be the most correct solution.

We do not consider the USSR Academy of Sciences to be innocent. The reform of the scientific headquarters is undoubtedly necessary. But it should be carefully thought out in conformity with the ancient maxim "do not harm."

[Signed] Academicians L. Barkov, V. Vladimirov, P. Volobuyev, O. Gazeiko, V. Ginzburg, G. Zatsepin, D. Likhachev, V. Marchenko, Yu. Mitropol'skiy, N. Moiseyev, S. Nikolskiy, A. Pogorelov, G. Fridlyander, S. Khristianovich, Corresponding Members of the Academy of Sciences Yu. Abov, I. Gurevich, V. Ioffe, N. Kardashev, M. Meshcheryakov, B. Nikolskiy, Yu. Oganesyan, Ye. Feynberg, D. Shirkov

Debate at General Assembly on USSR Academy of Sciences Future Status

927A0047A Moscow RADIKAL in Russian No 41,
17-23 Oct 91 pp 1, 2

[Article by Marina Lapina: "The 'X' Hour of the Academy"—first paragraph is RADIKAL introduction]

[Text] In reality only one question was submitted for discussion by the General Meeting of the USSR Academy of Sciences: Should it continue its existence as a union structure? A more precise wording, which was formulated by the presidium on 17 September, sounded like this: "To consider necessary the preservation of the unity of the USSR Academy of Sciences with the return to it of the name and status of the Russian Academy of Sciences."

Many collectives and individual scientists decided for themselves the question of the transfer to the jurisdiction of Russia long before the meeting of the presidium (along with others, this circumstance, of course, triggered the meeting and influenced the stand of the academy bosses). Here, I think, only a few were guided by "ideological" considerations. The majority made the decision out of purely worldly considerations—for the sake of a chance to survive.

At the meeting, it is true, assurances that financial motives did not play a role at all in the choice of the

stand, were heard repeatedly. One cannot believe very much such altruism, inasmuch as in the formed situation it is possible to regard it only as stupidity. Especially when it became obvious that the ukase of the President of Russia on the establishment of the Russian Academy of Sciences is among those that all the same will be implemented.

Only a person, who poorly knows our academy and its rules and morals, could expect that the basic question of the agenda of the two days of the General Meeting would not result in stormy debates. Although the formal indicators did not presage any storm: Everyone had spoken in favor of the transfer to the jurisdiction of Russia. Only the Philosophy and Law Department, the most offensive one, did not give a clear response.

As should have been expected, the unity of views of the majority of members of the academy is merely an appearance. There was no unanimity even among the members of the presidium, who on 17 September voted unanimously for the wording that they have formulated. The differences in the highest echelon of academic authority, the representatives of which up to now preferred with regard to fundamental questions to run as one team, are one of the surprises of the last General Meeting. Even for those colleagues on the team, who usually ran nose to nose.

The first official presence and statement in "the house of lords" (according to the definition of R. Sagdeev) of representatives of the scientific community were another unprecedented event.

The discussion of the first day of the meeting led to sad reflections: Superiority was obviously on the side of those who considered it necessary to retain for the academy a union status. Their arguments for the most part reduced to the fact that one must not destroy such a fine organization, which consists of a large number of republic academies (although no one intended to destroy it), that it is necessary simply to pull belts a little tighter during this difficult moment, that the unified state would not ignore the academy (the fact that such a thing no longer exists was given a hostile reception), that it simply did not befit such a great organization of the Academy of Sciences to merge with who knows who....

I am prepared to agree with all the epithets, which came from the mouths of the supporters of this point of view, but their everyday nearsightedness was simply astonishing. The inability or reluctance to face the truth united such people, who are different in all respects, as Academician A. Rumyantsev, chief of the Science Department of the CPSU Central Committee during Khrushchev's times, and Academician V. Kudryavtsev, in whose statement the position of the "unionists" was formulated most clearly. By his own admission, he changed his point of view over night. He explained such a metamorphosis in the following way:

"I participated in the meeting of the presidium of the 17th, when we made the decision on changing the name,

but since then doubts have tormented me. We were under the influence of two factors: First, the disintegration of the Union had begun, second, the situation with the financing of science had become critical. Since then nearly a month has passed, and the situation, in my opinion, has undergone some changes in at least three point. The first: The integration processes between the republics are being revived. But the main thing probably consists in the fact that the Academy of Sciences should not only follow the processes, which are taking place in the country, but also influence them. Incidentally, I should note that neither the All-Union Academy of Agricultural Sciences imeni V.I. Lenin, the academies of pedagogical and medical sciences, nor other creative organizations are breaking up or are being transferred to the republics.

"The second thing is the position of the republics. They also need a consolidating force in the person of the USSR Academy of Sciences. (As one of the speakers said, one must not understand the word 'international' in a vulgar way. Russia is prepared to cooperate with Kazakhstan on absolutely the same principles as with the United States and will, as before, aid the formation of science in the republics, as it did until now.—M.L.)

"The third circumstance is the vagueness of the position of the Russian leadership. It is necessary to clarify, at any rate, several essential things. What will happen with the institutes? Talk like 'some institutes we "will accept," some we "will not"' is going on. The draft of the charter of the new Russian Academy contains the following point: 'The organizing president of the academy of sciences of Russia can submit in consultation with the Committee for Science and Public Education proposals on the additional election of members to the Russian Academy of the most prominent scientists.' The proposed procedure signifies the obvious bypassing of people, who for 15 or 30 years now have been members of our academy. This, I think, is a disgraceful phenomenon, the degradation of our academy.

"The question of the subordination of institutes is also arising: Precisely to whom will they be subordinate and will they be at all or will they become independent and separate?

"Finally, what will the situation be with the social protection of scientists? After all, no one has given us guarantees that the wage increments, the advisers attached to the presidium and attached to institutes, the higher pay for doctors of sciences, and some other privileges, which for the present exist at the academy, will be retained."

It is such doubts that Academician Kudryavtsev shared with colleagues. They caused many people surprise, inasmuch as both organizing academician of the Russian Academy Yu. Osipov and V. Shorin, chairman of the Committee for Science and Higher Education of the RSFSR Supreme Soviet, gave ambiguous answers to main posed questions. No one intends to carry out the

selection of academic institutes: All those wishing to may transfer to the jurisdiction of Russia.

Yu. Osipov spoke separately in his statement with regard to the principle of regionality.

"Now in scientific surroundings, particularly academic surroundings, reports that the election to the Russian Academy of Sciences will be conducted in accordance with the regional principle are widespread. I believe that it is necessary to elect only in accordance with professional services. But the principle of regionality should be observed in the following sense. Assume that for one vacancy there were two equally qualified candidates, one of whom works in a remote area. Having God in our heart, we should all the same support this person. But this principle has not been formally recorded in a single document."

There was also no talk about the subordination of institutes to some ministries, as there was none, I confess, about increments.

The revelations of Vladimir Nikolayevich astonished not only me. Here is how Academician L. Keldysh reacted to them.

"The statement of Kudryavtsev, who just yesterday evening held to the point of view, which was worked out by the presidium, surprised me. For me nothing has changed since the decision was made. After the statement of Kudryavtsev the presidium was placed in a very difficult position. In reality, the question of confidence in the presidium is arising. If Kudryavtsev is right and the situation has changed that abruptly, we have taken an ill-considered step that is capable of bringing the academy to an abyss.

"I am not calling upon everyone to resign immediately, during the two months remaining to the election to the Russian Academy someone should be in charge. But if the General Meeting votes against the wording of the presidium, this will signify its inability to direct the academy.

"The words of Kudryavtsev that no one is guaranteeing us the preservation of increments and so on, also surprised me. The question being discussed is far more important, although I am also not that far from the age of an adviser, and I am also not entirely indifferent to the increments. But today we should make the decision out of considerations of principle."

I confess, during the entire longstanding history of my acquaintance with the academy I have never had occasion to hear anything similar from its full members, especially from members of the presidium, especially from the rostrum of the General Meeting.

But all this is from the realm of emotions. If we stick to the facts, then, in my opinion, among the other statements of Kudryavtsev's opponents the most well-reasoned and weighed, logically irreproachable one was the statement of Academician Ye. Velikhov:

"From what can we proceed in predicting our future? The present uncertainty with the Union and with the union and republic budgets requires some strategy or if only a tactic. Of course, we should hope for the best, but should be prepared for the worst, and it is necessary to safeguard if not the flowers, then at least the roots of our science. If we talk about the best, then, indeed, the RSFSR Supreme Soviet, the State Council in the person of Khasbulatov, and Yeltsin support us and are displaying a deep interest in the settlement of the question of the fate of science. Another question is what can they do?

"Let us proceed from the actual facts. You know that a decision on the establishment of a basic research fund was made. And although at that time both the government and the ministry of finance were operating, the fund simply did not emerge. There are even more serious indicators. For the first time since 1922 the Academy of Sciences and the entire scientific community did not subscribe to foreign scientific journals—there is no currency.

"If we prepare for the worst, it is necessary to understand: Our task is to provide at least a kind of survival budget, something like an unemployment benefit. I do not agree with Vladimir Nikolayevich that only the presidium made the decision on the change of the name and status of the academy. This was done at the request of many academicians, and I am a bit surprised why they are not speaking.

"Moreover, meetings of the departments and then the presidium were held, and many expressed their opinion clearly. Why is this so important? Because in such a critical situation we must first of all avoid war. What do you imagine, simply on the basis of common sense, would happen, if as of December of this year there were two academies in Russia? War is inevitable. We should settle the question for ourselves: We embark either on the path of conflict or on the path of integration. If we enter into conflict, we should realize: The new academy will cut us off not only from the ground (financing—M.L.), but also from the past. The very name 'Russian Academy of Sciences' will signify that namely it is the heir of Peter's academy. After all, not for nothing did Russia settle on such a name.

"It is exceptionally important that the process of integration be synchronized with the process of election to the new academy. If it were to emerge, it is necessary to understand: Any living organism immediately acquires the characteristic of the rejection of any other living organism. Therefore, the first meeting should be a general meeting of the two academies.

"For the accomplishment of the process of integration it is necessary to draw up a program jointly with representatives of our scientific association. On 10-12 December we plan to hold an all-Russian conference and are calling upon all members of the academy to participate actively in its work. There it is necessary to elaborate proposals

for discussion at the first general meeting and to elect there the new governing bodies. But this is possible only if we make today the right decision. The image of the enemy was created in the person of our academy, now we are beginning to create the same image in the person of the Russian Academy."

After Velikhov, in my opinion, had dotted the "i's," the scale finally began to tip in favor of the supporters of the return to the USSR Academy of Sciences of the status of the Russian academy. The voting results confirmed this.

Thus, the basic task for this moment has been accomplished. But will the members of the former union academy have enough wisdom to understand: This is merely a forced compromise, which is mandatory for the survival of our science, but is by no means sufficient. The course of the discussion at the General Meeting caused certain apprehensions.

The successful settlement of the questions of science proper is impossible under the conditions of confrontation. About what association, club of scientists, as they often called the academy, is it possible to speak, if one representative of the association (Corresponding Member A. Yablokov, who spoke, according to his own words, as the personal representative of the President of Russia) accuses other members of this association (meaning first of all Academician Yu. Osipyan, who did not ignore the attack of his colleague) of the fact that they made the Academy of Sciences a pawn in the political game? The authors of Gorbachev's ukase "On the Status of the USSR Academy of Sciences" pursued, in the opinion of Yablokov, just one goal: to deprive Russia of its own academy. Many people did not like that ukase, but all the same it did not occur to anyone to ascribe to its creators the nuturing of so ignoble ideas.

Alarming symptoms of confrontation have also appeared between members of the academy and the organizers of the Russian Academy of Sciences, and, thus, in the future differences between academicians with experience and the novices, who will be elected in December, whether the old-timers want it or not, are possible. Having convinced themselves a priori that the professional level of the new Russian academicians will be lower than their own—which, strictly speaking, no one disputes—they are thereby already making a claim for leadership.

Representatives of the Russian administration have also already voiced their claims to "the management of science." The need to submit the candidates, who are being nominated as members of the academy, for approval to the Committee for Science and the Higher School of Russia is causing, to put it mildly, bewilderment. In no way is this the affair of administrative structures.

What the Russian Academy of Sciences is finally to be like is, of course, an important, but far from a vital problem for the fate of science. Far more complicated problems have to be solved, first of all at least some

financing has to be provided, if not at the 1990 level (which Yablokov assured us of), then if only at the level of this year (about which Shorin spoke). Both Academician G. Arbatov and A. Zakharov, the representative of the "informals" and a member of the Club of Voters of the USSR Academy of Sciences, in whose words the wage of scientific associates does not exceed the wage of a janitor, spoke about the catastrophic state of institutes. Unfortunately, one has to admit that the skepticism of Velikhov is not without foundation: Promises are one thing, the real possibility to fulfill them is another.

The preservation, using modern terminology, of a unified scientific and technical space and the conclusion of an agreement on interstate scientific and technical ties have become a necessary condition of survival. Not without reason did the decision of the last General Meeting not evoke joy among the representatives of the republic academies. In many republics they are already now talking about the fact that they are unable to maintain science. But unique scientific centers, which are of interstate importance, are located on the territory of several of them. Scientists are obliged to convince politicians that their support even in a hungry country is necessary.

'Former Union Republics' Meet To Develop Interstate Science Policy

927A0047B Moscow RADIKAL in Russian
No 37, 25 Sep 91 p 1

[Interview with First Deputy Chairman of the RSFSR State Committee for Science and the Higher School Aleksandr Tikhonov, by RADIKAL correspondent Vladimir Pokrovskiy; date and place not given: "The Space of Science"—first three paragraphs are RADIKAL introduction]

[Text] In Kiev the first step toward the signing of a scientific and technical "Union Treaty" has been taken.

Representatives of 14 former union republics (except for Estonia) gathered here on 10-11 September for the first working conference. Georgia, Latvia, Lithuania, and Moldova sent their own observers. Representatives of the USSR Supreme Soviet (Deputy Chairman of the Committee for Science and Technology Nikolay Karlov) and the USSR State Committee for Science and Technology (First Deputy Chairman Ivan Bortnik) also attended. As a result all the participants together with the observers signed a protocol, in which they came to an agreement on the future of interrepublic scientific and technical cooperation.

About what did the republics come to an agreement? Here is what First Deputy Chairman of the RSFSR State Committee for Science and the Higher School Aleksandr Tikhonov, the representative from Russia, told our corresponding Vladimir Pokrovskiy.

[Tikhonov] It was, of course, acknowledged that each republic formulates its own science and technology

policy entirely independently. But the realities are such that now the already former Union is united today not only by a common economy, but also by common science and education (incidentally, on the same days a similar working conference, which was devoted to the problems of education, was held in Moscow). In other words, none of the republics is capable of developing its science effectively without the closest cooperation with the others. The high degree of integration of science, the formed scientific and technical ties, which in some cases it is simply intolerable to break, the international nature of scientific activity in general, and the peculiarities of the transition period require of each of the newly formed states, regardless of the status declared by them, the closest cooperation with the others. We came to the agreement that it is necessary in the shortest time to conclude an interstate agreement on scientific and technical cooperation.

The draft of the agreement should be ready no later than 15 October. For its preparation it was decided to set up a working group on the basis of the Center of Studies of the Scientific and Technical Potential and the History of Science of the Academy of Sciences of the Ukraine with the participation of representatives of all the states. But the basic principles of the agreement are already clear today.

The member states will make contributions not to the common pot, but to specific programs that interest them. They will have equal rights to the intellectual property that is created as a result of joint operations, while the distribution of the profit will be in proportion to their investment.

For the elaboration and pursuit of a coordinated science policy it was also decided to establish the Interstate Scientific and Technical Council (MNTS) and, under it, a permanent executive committee and working bodies.

[Pokrovskiy] And what will the amount of the investment of each state be?

[Tikhonov] The specific amounts and the specific ranges of interests of each of the participants are now only being negotiated, but it is recommended by the agreement to proceed from established world practice—2.5-3 percent of the gross national product, and for the support of the participation of their organizations in international projects, up to 10 percent of their own spending on science.

[Pokrovskiy] What will happen with the former union structures?

[Tikhonov] We acknowledged as inexpedient the existence of the USSR Basic Research Fund. Instead of this the states, if they wish, can form their own similar funds. The matter with the USSR State Committee for Science and Technology is more complicated—the majority of participants in the working conference stated that they do not need this department. The Russian party still

believes that the State Committee for Science and Technology should remain in some, greatly reduced form. It will no longer have, of course, 12 billion rubles [R] a year, but, according to our estimates, it is necessary to leave it somewhere around R2 billion. The point is that there are things in which everyone is equally interested. These are the scientific centers of Dubna, Pushchino, and others, these are preserves, these are individual institutes like the All-Union Institute of Scientific and Technical Information, the Institute of the Sun in Uzbekistan, and others. There is, in the end, Baykal, our common property. And for the support of all this, undoubtedly, common science each state, in our opinion, is obliged to pay its share. But all these questions, I repeat, will be settled jointly.

Organization of Science on Contractual Basis Discussed

927A0054A Moscow RADIKAL in Russian
No 39, 9 Oct 91 p 7

[Interview with Candidate of Physical Mathematical Sciences Vladimir Yezhkov, deputy chairman of the USSR State Committee for Science and Technology, and Doctor of Juridical Sciences Anatoliy Vengerov, chief of the Department of the Legal Support of Scientific and Technical Progress of the USSR State Committee for Science and Technology, by RADIKAL special correspondent Aleksandr Spiridonov; date and place not given: "Europe: Research Under Contracts"—first paragraph is RADIKAL introduction]

[Text] In this issue RADIKAL completes the publication of the interviews (see Nos 29 and 37) [not translated] of its special correspondent, Aleksandr Spiridonov, with Candidate of Physical Mathematical Sciences Vladimir Yezhkov, deputy chairman of the USSR State Committee for Science and Technology, and Doctor of Juridical Sciences Anatoliy Vengerov, chief of the department of the legal support of scientific and technical progress of this committee, on the experience of the organization of scientific research and the use of its results, which has been gained within the Commission of European Communities (CEC).

[Spiridonov] Just a few days have passed since our last discussion, in which we emphasized once again the increasing value of CEC experience in our present situation. Now, when the formation of new state structures has already come to the finish line, when the time of basic decisions is approaching with the speed of a messenger, I am certain, it is necessary to reemphasize this idea.

[Vengerov] We will rely on the competence and sensibility of those people who prepare and make these decisions. And among them, incidentally, there are quite a number of those people, who have repeatedly gone to Europe and should be well-informed about the principle of the work of the CEC.... We shall see what we shall see.

[Spiridonov] In general it is objectively difficult for us, who have, to put it mildly, dropped out of the civilized order, to imagine how the Europeans are succeeding in coordinating the interests of different scientific schools, organizations, and enterprises with various forms of property and types of management of the different states.... To harmonize basic and applied research. And also under the conditions of a market economy, which rejects administration by mere decree. Incidentally, is it, perhaps, precisely owing to a free economy?

[Yezhkov] It is simply that in civilized society administration by mere decree emerges and develops exactly as much as the naturally arising functions require this. But the theme of our discussion today—the organization of scientific research on a contractual basis—lies, in my opinion, on a slightly different level. It is very specific. And we, I think, must be as specific as possible. I will venture just one general opinion, more precisely, statement: A developed contract (that is, contractual) system is indeed a very fortunately found form of the existence and development of science and technologies under the conditions of a market economy.

[Spiridonov] Then my first absolutely specific question is: How does the registration by contract of scientific research take place?

[Yezhkov] It consists of four basic stages. First there is an announcement in the official bulletin of the EC of the acceptance of proposals for participation in the work on a program and the acceptance proper of these proposals. Then the evaluation and selection of proposals take place. Contract talks are conducted with those who have made it through the selection process. Finally, at the last stage the parties affix their signatures to the concluded contract.

Of course, each of these stages is clearly formalized and structured, follows developed standard forms, and is supported by explanatory materials. For example, reports about the programs in OFFICIAL JOURNAL of the CEC are typical of the first stage. There the goals, terms, and cost of research, the closing date of the submission of proposals...are formulated.

[Spiridonov] Let us take some real program.

[Yezhkov] For example, in the second framework program in the section "The Quality of Life" there is the program "The Human Genome." The proposals to participate in it were published in OFFICIAL JOURNAL on 2 February 1989, and on 2 December of the same year the necessary supplements to the program were published in the same bulletin.

Of course, and this is no secret for the reader, open reports ensure democracy and the equality of opportunities.

Let us familiarize ourselves a little more closely with the report. Here is how, for example, the goals of research

are formulated in it—"to use and improve biotechnological knowledge in the study of the human genome for a more complete understanding of the mechanism of genetic functions, as well as for the prevention and treatment of deviations in this sphere; to develop in combination the ethical, social, and legal aspects of the possible use of the research results...."

[Spiridonov] Yes, in this case your humanities scholars have only to lick their lips.

[Yezhkov] Further the period of research—two years, that is, 1990-1991—is indicated, the contribution of the EC—5 million ECU [European Currency Units]—is specified, the fields of research are designated—the improvement of the genetic system of man, the perfection of methods and equipment, the training of personnel....

Or another program, FAR—Fishing and Aquaculture Research. The decision of the CEC council on this program was published in OFFICIAL JOURNAL on 4 November 1987. Its goals are "to support interdisciplinary initiatives for the study of resources and the development of aquaculture; to develop new methods and techniques of the development of small-scale resources." The contribution of the CEC for the five-year program is specified in the amount of 30 million ECU. It actually provides a powerful stimulus for the development of the management of the fishing industry and fishing techniques, for the increase of the quality of fish products, and so on.

[Spiridonov] We, as far as I know, have not yet had either similar reports or similar publications. True, about a year ago they addressed to the newspaper the request to publish the conditions of competition for one of the state scientific and technical programs which had been prepared by the State Committee for Science and Technology. We fulfilled the request. With that everything quieted down.... Incidentally, could you go into a little more detail—about this European OFFICIAL JOURNAL?

[Vengerov] It contains three sections—the official proposals of the commission for new programs, announcements on the decision of the council for research programs, and announcements for the submission of proposals.

The procedure of drawing up proposals, which has been thought out in detail, also corresponds to the strictly formalized procedure of announcements on programs. It should consist of three parts. The first is the name of the project and a brief description of it, the concept of the participants, and financial calculations. If confidentiality is necessary, the names of the participants are not indicated.

The second part contains a detailed scientific and technical description of the project: the goals, the work schedule, the methods and procedures, the status of

research, scientific and technical support, the substantiation of the necessity of a European level of research and the pooling of efforts, the principles of interconnection with other research programs and projects of the EC, and the like. In the third part the specific participants in the project and their roles, the status, the cost of the work, and information on the use of the results are noted in a fairly detailed manner.

The dates of the submission of proposals are precisely coordinated with the approval of the financial outlays—the budget of the program.

[Spiridonov] Thus, the proposal has been drawn up, sent, accepted....

[Yezhkov] Then, as I have already mentioned, the second stage of the drawing up of the contract—the evaluation, examination, and selection of proposals—begins.

Let us illustrate the unique calendar of the drawing up of a contract with respect to the projects that make up the BRITE/EUPAM program—industrial technologies, new materials. By May 1990 the program was announced. Until 14 September there was the acceptance of proposals. During October-November there was the evaluation. In December there was the result of the examination. Then contract talks went on until May 1991, while in May the conclusion of contracts began.

[Spiridonov] About half a year was allowed for precontract talks. In accordance with what rules are they organized? Who participates in them?

[Vengerov] The stage of precontract talks has also been legally analyzed and formalized most carefully. Moreover, as they say, for all contingencies. The talks can be of different types depending on the degree of elaboration of the project, the number and nature of the partners, the means of financing, and other factors. During the talks the proposals and the real capabilities of the participants are specified, new proposals and supplements from both sides are advanced and negotiated....

The commission, as a rule, conducts talks with the collective—consortium—of project participants. Usually there are not more than six such participants. In this case two of them should represent industry without fail. Further, partners from not less than two EC member countries should belong to the consortium. All these rules are set down in legislation.

At this stage particular attention is devoted to questions of the financing of a project, its type and nature are specified—"as a whole" or "as it is fulfilled," at strictly fixed prices or with allowance made for their fluctuations subject to market conditions. The periods and schedules of payments are also negotiated.

They distinguish the coordinator or the main contractor, who acts as the primary figure in the contract process, as well as the third parties and subcontractors. The third parties are parties to the contract, receive their own

specific share of financial support from the EC, and have the right to earn revenues. Although they do not sign the contract itself. The subcontractors also do not sign the contract. They work under special contract with the contractors and third parties, who pay in full the expenses of the subcontractor. Subcontractors are usually enlisted for one-time or strictly specified auxiliary jobs.

But, in my opinion, what is the main thing, questions of intellectual property hold a quite special place in the precontract talks....

[Spiridonov] Many of our readers will probably recall that precisely the draft of the law on intellectual property evoke the most fierce disputes both in the USSR Supreme Soviet and among the scientific community. The opponents saw in it the flash of state handcuffs for science.

[Vengerov] I am convinced that this is due only to the lack of understanding of the essence of the matter by some people and, on the contrary, by the realization of the loss of a portion of the functions of authority, if the law were passed, by other people. We will not escape the consideration and passage of this law. Provided, of course, we build in earnest a civilized order. But this is the theme of a separate discussion. Let us return to our theme of today.

The right of intellectual property, as a rule, belongs to the contractors—that is, to those who pay for and organize the work of specific scientists and specialists. At the same time in contrast the property interests of the creators of the intellectual product are also protected in a most strict manner—in the form of fees, a share of the revenues.... An agreement on this can also be reached when concluding the founding agreement on the establishment of the consortium. Then they often also settle the questions of the sharing of the revenues from the use of the right of intellectual property.

But in general the typical subjects of the right of intellectual property in such a system of contracts, which has been adopted and is in effect in the EC, are the laboratory, the university, and the enterprise.

[Spiridonov] It appears that we have approached the concluding stage. So much of everything has already been talked over and arranged on the shelves that it probably remains only to affix the signatures of the parties and....

[Yezhkov] No, have patience. The signatures should be affixed to a document of the highest degree of consideration and full legal value. Not by chance is the outline of the contract clearly set down by the corresponding standard acts.

The contract includes four parts that are independent in content. First, the text of the contract itself, in which the basic terms, the partners, the names and time of the completion of the project, the total cost and the

financing of the participants on the part of the commission, and special terms are cited. The second element is the portrait of the work program, in which the goals of the project and the contributions of the specific partners are described in detail. In the third part the general terms of the implementation of the project, the reimbursement of expenses, and the use of the results of research and know-how are listed, and the procedure of issuing licenses is also recorded. Finally, the fourth element of the contract contains the terms for partners from the group of countries of the European Free Trade Association—these are mainly the Nordic countries, for which special terms of participation in projects have been legalized.

They also distinguish and record without fail in contracts questions of the management of its fulfillment, the schedules of payments, the procedure of giving advances and preparing documents on the cost of the project, various technical questions, a summary report, the procedures of consultation....

Several general characteristics of contract research are also worthy of attention. For example, the time of the consideration of proposals—approximately four months—is clearly established. The process of allocating assets is very intricate and has been carefully adjusted. A committee made up of representatives of different countries participates in it. Various stimulating mechanisms—the granting of privileges, the extension of credit, and so on—are used in this case.

[Spiridonov] And what does the, so to speak, personal aspect of the contract system look like?

[Vengerov] They also hire the project director under a contract, the term of which corresponds to the period of the accomplishment of the contract program. While the contracts with specific scientific personnel and specialists are concluded, as a rule, for three years. Individual contracts are extended in case of successful work. They can be replaced by permanent ones after a certain time has elapsed—as a rule, after 10 years.

[Yezhkov] We have already mentioned the EC OFFICIAL JOURNAL. But this is only one element of the significant publishing activity, which the contract system anticipates. For example, they are constantly preparing brochures and video cassettes on how to prepare proposals and to work with partners. A large group of lawyers—the contract service—works for the contract system. The questions of financing, language problems, and the procedures of disputes have been studied in a well-organized manner. For example, the question, to the court of what country should one appeal in case of an arisen difference, has been settled.

To summarize, it is possible to say that the contract system effectively links the various participants in research activity and unites universities, laboratories and industry, basic and applied research. It proved long ago its effectiveness in the development of science and

technologies in a market environment. While for inter-state relations it is a reliable consolidating factor.

[Spiridonov] Of course, in three interviews it is impossible to find room for all the experience of the organization of science and the use of its achievements within the EC. Therefore, if there are specific questions, there will be new reports.

Political Activity of USSR AS Voters' Club Described

927A0057A Moscow RADIKAL in Russian
No 42, 24-30 Oct 91 p 2

[Article by Vladimir Pokrovskiy: "A Political Portrait of the Club of Voters of the USSR Academy of Sciences"—first paragraph is RADIKAL introduction]

[Text] The Moscow City Organization "Democratic Russia" (MCO DR) and the Club of Voters of the USSR Academy of Sciences (CVAS) have had a major falling out. At any rate today the CVAS is very close to the completely severing of relations with the organization (please do not confuse it with the republic "Democratic Russia," of which the CVAS both was and remains a founding member).

It would seem—what of it? After all, discords, splits, and semiparliamentary explanations of relations have become today such a common practice in our democratic movement that many of us, when pronouncing the word "democrat," simply contrive to precede it with the favorite article of party functionaries—"so-called."

But this is awful. This is so painful a theme that one does not want to touch upon it properly. The MCO DR, which united within it people, whom just a few months ago we trusted unconditionally and at whose appeal we gathered at rallies of millions and stood face to face with grim members of the OMON (Special Purpose Police Unit), whom we opposed with such pride to the crafty communists without a mind, honor, and a conscience—this very MCO DR suddenly split at the moment of establishment. The social democrats, the party of Travkin, and several other parties plus the CVAS left as a sign of protest the constituent assembly of MCO DR. They state that the assembly was illegal, that during it there were a large number of procedural violations and for that reason, they say, goodby. And this is at the moment when the democrats need to unite and to begin more quickly to act. What is this—faultfinding, arrogance, troublemaking?

I do not know about the others there, but these accusations are applicable to the CVAS only to the most negligible degree. We have become accustomed, particularly in recent months, to the fact that the CVAS is an organization, which is engaging very vigorously and, what is the main thing, effectively in reforms at the academy. They invite its members to the presidiums of the Academy of Sciences, they talk now with Khasbulatov, now with Burbulis, they hold firmly in their hands

the reins of the forthcoming conference of scientists of the Academy of Sciences, their objections are always well-reasoned and weighed, while their proposals are always reasonable and to one's delight are often implemented. Here one must not forget that from the moment of its birth the CVAS was the most politicized of all the informal scientific unions. It not only organized rallies and not only produced protests, proclamations, appeals, and so on—members of the CVAS took a most active part in the 1989 election campaign, the famous "Moscow deputy group," which later developed into an interregional group, was formed with their help. And together with others members of the CVAS—Aleksandr Sobyanin, people's deputies of Russia Anatoliy Shabad and Viktor Sheynis—were at the source of "Democratic Russia."

What is going on?

"In order to understand the cause of the differences," CVAS member Lyudmila Vakhnina believes, "it is necessary to recall the history of the establishment of these organizations. The rally in front of the building of the presidium of the Academy of Sciences in defense of Sakharov in February 1989 was the date of birth of the CVAS, just as, perhaps, of all other unions of scientists. Until this moment the election campaign had slowly gathered momentum. Scientists for their most part were suspicious toward it. Given the unquestionable support of Sakharov and other prominent scientist in scientific surroundings there was an ambivalent attitude toward the possibilities of the election campaign: on the one hand, skepticism ('Nothing will happen, the presidium will not make way') and, on the other, hope ('the presidium, it seems, should pay attention, for the entire scientific community is nominating'). And when suddenly it did not work out, when it turned out that the presidium utterly did not give a damn about the opinion of the scientific community, people felt insulted. And the idea of the rally emerged on this wave. After the assembly at the Institute of Chemical Physics, which Anatoliy Shabad from the Physics Institute imeni P.N. Lebedev of the USSR Academy of Sciences, Sakharov's proxy, attended, it was decided to file an application for a rally. The news instantly flashed around the institutes, our telephones rang continuously, everyone wanted to join us. They quickly put together an action committee, the famous group notification system, when the coordinator of each group at the necessary moment calls his people, formed immediately, almost spontaneously....

"The CVAS, an organization of people, who in general do not intend to engage in politics, and more precisely political maneuvering, and who tore themselves away from their favorite job only when they could no longer keep silent, was thus established. This trait has remained to this day. The active membership of the organization is variable. We even do not know how many people we have. When the situation is relatively calm, there is no one, the coordinating council and a comparatively small number of activists at institutes work. But, when necessary, the notification network makes it possible to rouse

people quickly, to let them express their opinion, to let them react—now to events in Lithuania, now to situations that arise at the Academy of Sciences.... Although now it is evident that the future will require of us greater rigidity of the outlines and a greater degree of formalization.

"And another peculiarity of the CVAS is the independence of its members and the optional nature of the decisions of the coordination council for fulfillment. Each person uses his own discretion—he either declines or comes and joins in the common cause. It is difficult to exist on such bases, but I believe that this is one of the merits of the CVAS."

"Democratic Russia" was established under entirely different conditions. In Moscow it was formed mainly on the basis of the rayon clubs of voters, which were united in the Moscow Association of Voters. While the coordinating council of the Moscow Association of Voters, in turn, was made up mainly of activists of the Moscow People's Front—one of the first informal organizations of the capital. The Moscow People's Front appeared when there were still few protesters, they had still only beaten a path, while the opposition to them was very stiff. Such organizations willing or not should themselves also be rather inflexible. I think that this left a mark on the Moscow Association of Voters, and then on the Moscow 'Democratic Russia'."

"Of course, they were the first, of course, the Moscow Association of Voters played an enormous role in the capital's democratic movement, but from the very start an inclination for staff intrigues, authoritarianism, and the suppression of dissent began to appear in this association. The obvious desire of its leaders to direct each and every thing, without taking objections too much into account, was highlighted more and more. It is rather difficult to corroborate this inclination on the basis of facts, because for the most part they reduced to minor procedural violations. And when we did raise objections, our position seemed a little troublesome to outside opinion—after all, you will not make clear to anyone that these are not so much questions of the violation of procedure as a style of leadership, which is unacceptable for us. In the MCO DR these shortcomings, perhaps, even became worse. The tendency to cut off dissidents found its extreme expression in the document, which they recently circulated among the rayons and in which it was stated that one must not admit to the forthcoming conference of the MCO DR people who are of a hostile disposition (?!).

"Moreover, when it was a matter of an informal organization that is opposed to the authorities, it was possible, in the opinion of many people, to tolerate such phenomena in the name of unity. But now, when the leaders of 'Democratic Russia' often turn out to be linked with the existing power structures, this is becoming entirely intolerable. Today the CVAS is adhering to the following position with respect to the MCO DR. We believe that 'Democratic Russia' was initially a coalition movement, and no one has the right to cut anyone off from it. For us

the present position of the MCO DR is unacceptable, we did not become a part of this organization and sent our own observers to the conference, but now, after several actions of the MCO DR, doubt whether the observers need to participate in it. But, of course, the conference of the CVAS will settle finally the question of our participation in some associations or others."

Lyudmila Vakhnina expressed very mildly and cautiously the attitude of the CVAS toward the Moscow "Democratic Russia." This became clear after RSFSR People's Deputy Dmitriy Katayev, a member of "Democratic Russia," on 21 October came to a meeting of the coordinating council of the CVAS. I have known Dmitriy Ivanovich for a long time, and, except for sincere respect, I do not have any bad feelings toward him. Therefore, it was very sad to see how one intelligent and good man time after time is duped by other good and intelligent men who are also no less worthy of respect than he is.

In the emotional salvo of "Democratic Russia" they recalled everything. The syndrome of the "angry wife," who adds to the last transgression of her husband all the previous ones, counting from the day they met, came into play. But in the majority of cases the accusations were very well-founded. Katayev refuted some of them and was unable to refute some. For example, he reported that the text of this document on not admitting hostilely disposed people, about which Vakhnina reported, was subsequently acknowledged as incorrect and was disavowed. But it turns out that this document was also circulated very quietly after the disavowal and, moreover, was read over Radio "Russia."

They said that the personnel of the MCO DR are selected not on a practical basis, but according to the principle of personal loyalty. They spoke—and rather harshly—about the "mandate" morality that reigns in the MCO DR. This is that sort of sociological term which has a direct relationship to the difference between the assurances before an election and the behavior afterwards. They spoke about the extremely low intellectual level that reigns at meetings of the MCO DR. These meetings were compared with the weak reflection of meetings of the CPSU, at which organizational zeal seethes, at which all the time is devoted to minor issues, while the main ones are not even mentioned.

They also spoke about the "charismatic" attitude toward the leaders—this concerns Gavril Popov. With respect to the mayor of Moscow the CVAS adheres to the strategy of freedom of speech: to give support in correct steps and to criticize incorrect ones. Approximately the same attitude is also proclaimed in the MCO DR, but, to all appearances, it is only proclaimed. It turns out that an appeal to Gavril Kharitonovich, in which, in particular, his personnel policy was harshly criticized, was adopted at the second conference of the MCO DR. Some people called for appealing to him publicly, some called for refraining in general from appeals. They chose a compromise—they appealed to him, but not publicly. Popov listened to, but

ignored the appeal, having responded by appointing a number of offensive individuals, particularly Nikolskiy. The CVAS examined in earnest the biography of Nikolskiy and came forth with a protest, for which it received from Gavriil Kharitonovich the accusation of activity on the orders of Prokofyev. While the MCO DR kept silent and ate up the indifference of Popov, as if there had not been an appeal.

They demanded of "Democratic Russia": liberalism as a world outlook and democracy as the method of making decisions with respect for the line of reasoning of the opponent. They recalled the break of Lenin with Plekhanov in 1903: Lenin at that time insisted on departing from democratic principles for the time of the "organizational period," while Plekhanov warned of the consequences, which we are now well aware of from our own experience.

Katayev acknowledged much, but in the end still appeals to the members of the CVAS to return to the MCO DR.

"It is possible, of course, to leave 'Democratic Russia' in order to attempt to create an alternative to it," he said. "But I do not know who will be able to create an organization like 'Democratic Russia.' In any democratic organization, which is rather large, these defects will exist without fail. So let us adjust better the existing organization."

This call did not produce the desired effect. The sides parted, having been left with their own convictions. The dispute between the CVAS and "Democratic Russia," which is such a traditional one for the present, simply remained unresolved.

Osipov Admits New Russian Academy of Sciences in Budget Crisis

927A0107A Moscow *IZVESTIYA* in Russian
17 Jan 92 p 2

[Article by *IZVESTIYA* correspondent Kim Smirnov: "Academicians and Journalists: How Is Science To Be Saved?"—first paragraph is *IZVESTIYA* introduction]

[Text] President of the Russian Academy of Sciences (RAN) Yu. Osipov, First Vice President A. Gonchar, and Chief Scientific Secretary I. Makarov conducted a dialog with journalists.

The questions were pointed, the answers were honest.

The press was interested, for example, in whether there are any practicable means of getting out of the situation, when where Americans are investing \$3 in basic science, we are investing only 1 ruble. An even more depressing picture was drawn in response. The average wage of an associate of our Academy of Sciences is one-tenth to one-thirtieth of international standards. At this moment the coffers of the Academy are empty. There is not a single dollar. Not one foreign journal has been subscribed to.

But the leadership of the Russian Academy of Sciences for the time being is not losing heart. It is seeking links, by pulling on which it is possible to pull out the rescue chain. In the immediate future it will negotiate with the state authorities of Russia about the preservation of scientific collectives that are conducting space and nuclear research. Another link is: the "replenishment" of science with fresh blood, with young people and resolute actions on the convergence of academic science and the higher school. Finally, it is time to proceed from talk about a basic research fund to its establishment and to a sensible, democratic mechanism of its use.

Saltykov Interviewed on Science Funding Problems

927A0094A Moscow *IZVESTIYA* in Russian
9 Jan 92 p 2

[Interview with Russian Minister Boris Georgiyevich Saltykov by *IZVESTIYA* correspondent Yevgeniya Manucharova; date and place not given: "Boris Saltykov: It Is Advantageous To Be Free. The Russian Minister Answers Questions on Business in Science"—first two paragraphs are *IZVESTIYA* introduction]

[Text] "If you cannot give money, give us freedom. And do not interfere." This is the usual demand of energetic people to governments. We will also act precisely this way: There is no money in the budget, but the intention of the government to give scientists freedom is firm. In many respect the "concept of the rescue of science," about which you are asking, is based on this, Russian Minister Boris Georgiyevich Saltykov said.

Freedom in the understanding of Saltykov, a convinced "market advocate" (not without reason after the Moscow Physical Technical Institute did he go through the school of our most prominent economists at the Central Institute of Economics and Mathematics), presumes the freedom of actions of not only those who need money, but also those who can finance science.

[Saltykov] I will make every effort so that the enterprises and funds, which will finance science, would have preferential taxation. Domestic commercial structures (a large amount of paper money has been amassed there) and foreign sponsors can be among them. I am trying to conduct the most vigorous propaganda among all potential investors, but, I must admit, for the present there are few who want to: Scientific development (especially basic research) does not promise a rapid return on money. And still both Europe and the United States are proposing to give our scientists aid.

Perhaps, the Debt Forgiveness Project is most practicable and interesting. It is proposed that we repay the United States not the entire amount of credit that is granted to us. They will knock off from it for us such a sum as we spend in ruble equivalent on the development of basic science. As if we would be spending the money in the interests of the Americans themselves. And in essence this is also true: All mankind needs the results of such research.

But this is in the future. While now common grants with Americans—sums for specific special-purpose research—are saving us. They have been allocated by the U.S. National Science Foundation.

[Manucharova] Is Russia not forming its own basic science fund?

[Saltykov] It will exist. But a small one. Initially it will be difficult to organize the distribution of these assets—for an adjusted system of examination, a skilled staff, and experience do not yet exist. Now only a data bank on specialists, who can become independent experts, is being developed.

[Manucharova] Grants, just as other foreign benefits, rarely fall to the lot of young scientists. How is one to rejuvenate our science and to slow the process of the brain drain?

[Saltykov] The aging of science is an objective process. Scientists do not share their laboratories with their students and remain (willing or not!) monopolists in their themes. The hidden economic motive of academic monopolism lies in this.

But with the introduction of normal market relations in scientific structures much will change. People, who are capable of setting up innovation firms, are now also engaged in this. And this will not be any tragedy for

science. Some commercial firms are operating very successfully. (They are developing new tools, including medical instruments, and equipment.) People with organizing skill are going there.

But at scientific research institutes there are also people of another type. Science itself is their goal and joy. Even with today's impoverishment they are not seeking commercial success. Although the influx to scientific research institutes of young people of this type is now small. And the objective demand for them has now decreased.

[Manucharova] Thus, are we easily letting talented people go beyond the cordon?

[Saltykov] We are. And it cannot be otherwise. The "drain" is not yet the greatest misfortune. In the present urgent situation it (at least somehow!) is still making it possible to preserve the intellectual potential of the nation. Better for them to be there than nowhere. But we are trying to find various (including commercial) means of interesting people in work in the homeland. If you know of any other opportunities, let me know. We are open to new ideas. And we know: They originate not in ministerial corridors.

[Manucharova] Can the powerful scientific complex, which is busy with truly new scientific ideas, operate without budget supply?

[Saltykov] They are actually operating in all countries.... And they will in ours. The Central Aerohydrodynamics Institute imeni N.Ye. Zhukovskiy intends to be an independent structure. Of course, a certain courage is needed to make up one's mind. After all, only once in five to seven years does there appear in research complexes such an intellectual product, in which it is profitable to deal. That is why large research centers, if the state does not maintain them, exist not due to their main product, but due to the fact that they produce at the same time mass-produced items. The Central Aerohydrodynamics Institute imeni N.Ye. Zhukovskiy, for example, has the opportunity to use its unique experimental equipment for commercial services.

[Manucharova] Small science business has now blossomed in our country. What incidental jobs do they have? For they simply deal in new technologies and ideas. Are they their own?

[Saltykov] No, for the present it is beyond their power to develop a new intellectual product. Small innovation firms for the present are intermediaries. They are also becoming rich on that. But they are useful. After all, usually (during the distant times of stagnation) the periods of the introduction of scientific developments were dragged out for 10-12 years. While a year, half a year, or else five months are sufficient for the new firms. They act promptly on the buying up of components and on the enlistment of the needed specific people and conclude profitable contracts namely with them. The next stage is the switch to the open buying up of

advanced technologies. And it has already begun. Now it is possible to shut one's eyes to the stealing of state intellectual property. For it will remain on our territory.

[Manucharova] Again the state is out a pretty penny. And it still does not have laws on the protection of intellectual property....

[Saltykov] The laws will begin to work. But still it is not a matter of protective measures. A different system of the organization of large communities of scientists is needed—only they can both generate new ideas and develop such an intellectual product, which will sell on the world market. But they should not count forever on intermediary firms. Such a thing does not exist in the world. And they should not count on sponsors—large industrialists. Wealthy firms rarely conclude contracts with any research collective, thereby giving it means of subsistence. They have their own in-house laboratories for this.

[Manucharova] Did you come to give science free rein? And higher education as well? Can the educational institution itself formulate programs of instruction?

[Saltykov] It can. But some standard of the demands on specialists is needed. Given the opportunity to carry out freely teaching in accordance with various (at times very dissimilar) programs and courses it is important to maintain a high level. For the present it is too early to abolish state certification of courses and instructors (I did not use a very apt verb, but the idea, I think, is clear). And it is too early for the present to abolish the idea of the Higher Certification Commission. We pay for the labor of professors from the state budget and should be certain that they deserve that. Therefore, a certificate, which testifies to one's skill, is also necessary. But it is necessary, of course, to improve the Higher Certification Commission.

[Manucharova] Once again control over the controller! But will there really not be independent scientific institutions?

[Saltykov] The more of them there will be, the better. Soon Moscow State University will become an independent university. Although not fully.... It is autonomous. But still a state university. The approval of the person of the rector will go through several stages. The scientific council will elect him, the board of trustees will consider the candidate, while the government will finally approve him. This is normal. The state pays the money and should be certain that a worthy scientist directs the university.

The level of the rector and the level of the charter—this is what determines the life of the modern university.

[Manucharova] Thus, Moscow State University will live like the Academy of Sciences. They have given it, it would seem, independence. However, they did not keep it on a money leash—on financing. A final question: Will

Russia shut itself up in its own scientific programs or will it do business with the sovereign neighbors?

[Saltykov] Academician Paton, president of the Academy of Sciences of the Ukraine, was the first, perhaps, to understand the necessity of our cooperation and took steps against the narrowing of the front of scientific work. He turned to us with the idea of continuing the joint program on the development of new materials (he is the leader in this area). Russia, like any civilized state, is not setting limits for its science.

Russian Government Authorizes Funding for Applied Research

927A0094B Moscow ROSSIYSKAYA GAZETA
in Russian 20 Dec 91 p 1

[Article (TASS)]

[Text] By the order of the Government of 18 December 1991 for the purpose of ensuring the financing of research and development in 1992 enterprises and organizations of republic (RSFSR) subordination are permitted to include in the cost of the produced output (operations, services) the expenditures on the fulfillment of general sectorial and intersectorial research and development and measures on the assimilation of new types of products (operations, services) with the transfer of the assets obtained in this way to special funds for the financing of the indicated operations, which are being formed in the corresponding ministries and departments of the RSFSR and at concerns, corporations, and associations.

The RSFSR Ministry of Economics and Finance with the participation of interested ministries and departments of the RSFSR is commissioned to establish the procedure of the formation and use of these funds, including the maximum amounts of the deductions from the cost of the produced output (operations, services).

Funding for Basic Science Remains Doubtful Despite Changes

927A0113A Moscow POISK in Russian No 50 (136),
6-12 Dec 91 pp 1, 3

[Interview with Boris Saltykov, Minister of Science, the Higher School, and Technical Policy of Russia, by POISK correspondent Yelizaveta Ponarina, under the rubric "What Is Science To Be Like?"; date and place not given; "It Must Be Said Honestly: There Is Not Enough Money for Everyone"—first two paragraphs are POISK introduction]

[Text] They say that the house on Tverskaya, where the USSR State Committee for Science and Technology was located earlier and now one of the subdivisions of the Ministry of Science, the Higher School, and Technical Policy of Russia is now located, during these December days resembles a social security department. Sobs, groans, and cries: "Give us money!" are heard in the

corridors. Seldom does anyone ask for less than a million. And everyone claims that otherwise their institutes and laboratories will fall to pieces.

The situation, if we dismiss the humor with respect to ourselves, is dramatic. How is Boris Saltykov, the new minister, coping with it? In an interview with our correspondent Yelizaveta Ponarina today he tells POISK readers about this.

[Saltykov] Most often of all I speak the sad truth: There is little money, there is not enough for everyone. Moreover, not those who arrived first, not those who shouted louder, and not those who have more regalia will get it. But most likely of all those, whose works Russia needs most of all, will.

[Ponarina] Now? And who will determine this—the president, the Supreme Soviet of the RSFSR? Representatives of local government?

[Saltykov] Now, as someone said, in our country "a ruminating person" does not need science. But all the same the state will give money for it. Expert councils will determine to whom. But you, after all, know how even technically imperfect this system is in our country. Therefore, we are adding new people to these councils. Often those people who themselves aspire to this job. Incidentally, the Analytical Center of the former USSR Academy of Sciences for Problems of Socioeconomic, Scientific, and Technical Development is now working on the development of a database of experts of the USSR. Data on 10,000-15,000 people will be entered in it. These are scientists, who most often have works published abroad and have a high rating.

For the present our expert councils are not too authoritative. To a significant degree, I think, because, though puny, stable basic financing makes the obtaining of grants more a troublesome pursuit than a profitable one. For the time being....

[Ponarina] The ukase on the establishment of the Basic Research Fund of Russia was one of the last acts of the RSFSR State Committee for Science and the Higher School. Is this fund destined to come into being?

[Saltykov] It will be established. True, at first under the ministry. Although according to all canons it should be independent. At first a small one, but there were ideas to round up here the entire amount of assets that are being released for basic science, and then to divide them. I am categorically opposed to this. It is necessary, I believe, to transfer the base financing (80-90 percent of all the amounts) to science through the ministry (that is, through the councils) and to distribute, say, 300-400 million through the fund by means of grants. We simply cannot control a large amount of money—there is no orderly system of examinations, there is no experience.

Incidentally, the U.S. National Science Foundation also started with little—with a budget of \$50 million. Now it

annually distributes \$2.2 billion. But there are 40 years between these two quantities.

[Ponarina] The state budget, the fund.... What other sources of financing are you prepared to put to use for the good of your wards—science and the higher school?

[Saltykov] Let us begin with domestic ones—these are commercial structures that have already accumulated quite a lot of "wooden" rubles. But for the present they are not burning with the desire to invest science. Only the programs that will provide a return in two to three months, at most five. But it is necessary to work with people. And to try to persuade them. And to attract them: I will exert every effort to achieve preferential taxation for those who will finance science.

The second source is the foreign source. Rumors are going around that Europe intends to establish a Soviet Basic Science Assistance Fund. The idea of joint grants of the U.S. National Science Foundation is being tried out. For us this will take the form of the opportunity to go to the States for a week to a month, to familiarize ourselves with the work of colleagues and their laboratories, and to compare results. Plus we nearly came to an understanding that for this money they will also supply us with inexpensive equipment. Perhaps, we will succeed in releasing a portion of the dollars for the wage of scientists who have received grants. For Americans these are laughable sums—for example, 150 a month, while for our people they will sharply increase the standard of living. And they will make it possible to buy literature, preparations.... A real scientist. I am certain, will also begin with this.

There are also two other major sources: the possibility of interest-free preferential credit for science—the Americans have had such experience of work with developing countries. (Although we, I will note, are not from the category of third-rate states, we are a country of first magnitude. With an enormous potential. Only one that has found itself in a most serious crisis.) Thus, by such preferential credits the United States supported the implementation of projects on resource conservation, mineral prospecting, conversion, nuclear safety—in short, everything that is useful to all mankind.

And the quite interesting suggestion on the possibility of spending on science a portion of the foreign credits in their ruble equivalent, which are granted to us, is being discussed. For example, 5 percent in rubles of the total amount in currency. Perhaps, we will succeed in coming to an understanding that we will repay in dollars only 95 percent of the credit.

[Ponarina] Is there such an agreement?

[Saltykov] No. For the present a discussion of the versions is taking place. It may break down. Unfortunately. It is a matter not of the concept of the development of science, but of the concept of survival. Here everything is delicate, shaky, problematic.

[Ponarina] And what will happen with interrepublic research? The Union has disintegrated, the SSG [Commonwealth of Independent [samostoyatelnnyy] States] has not yet been formed....

[Saltykov] It will become interstate research. A few days ago I received a letter from Academician Boris Paton. He proposes to retain the program on promising materials and guarantees that Ukraine will contribute its share. Of course, it is desirable to retain such a program as an interstate one. However, it is not worth talking about the unconditional continuation of all such programs.

The situation with the participation of the former republics in previous international programs of the USSR is even more complicated. We have now placed our foreign colleagues who are scientists in an ethically extremely uncomfortable position—in the situation of choosing between Gorbachev and Yeltsin. They are asking: Who will be the successor with regard to the experimental thermonuclear reactor project? With whom are we to deal? Who will provide financing?

[Ponarina] Science is not lucky all the time. It always hangs on these political threads, being afraid to stir. In this respect the most striking example is last year's ukase of the USSR President on the large Academy. They put scientists, it seems, in a special position, but nothing came of it.

[Saltykov] Yes, for the same reason. The Academy of Sciences was drawn into the political game. It performed the role of an attribute of the union state system and did not want to discuss with President Yeltsin the possibility of being transferred to Russia, a large part of its staff wished to remain a union, it seems, stronger academy. In response Russia established its own academy. Purely political opposition sprang up. And thus far, incidentally, it has not ended. And the second thing is that there was an article on property in the ukase. They also blocked it: After all, they decided to declare the property, which is located on the territory of Russia, union property. Now everything has been settled.

[Ponarina] Really? The question of privatization in science and the higher school is open.

[Saltykov] That is why it is very difficult. To put in briefly, today particularly at the academy there should be no privatization. Everything belongs to a certain large legal entity—the Russian Academy of Sciences (RAN). One must not be in a hurry with division. There are about tenfold more arguments against privatization in science than there are "for." The main thing is that the Russian Academy of Sciences is now free from the state and is linked only by the amount of money that the state allocates....

[Ponarina] Freedom—the right to quietly vanish independently due to a food shortage—is not bad. The motto of the intellectual elite of Russia is: "We will achieve an increase of the wage of a professor to the salary of a bus driver!"

[Saltykov] You have old information. Remember the first ukase of the president of Russia? In POISK you called it "Barrel of Mead No. 1." Thus there is there a point about the establishment of the wage of professors and instructors at a level that exceeds by twofold the average wage for industry. Is it a good thing? But if our ministry, which unites sectorial scientific research institutes, academies, and the higher school, had already been established at that time, this point would have been worded differently. For it is unclear, on what grounds does an instructor of a higher educational institute earn twofold more than a doctor of sciences of an academic institute?

[Ponarina] Will you prepare "Barrel of Mead No. 2"?

[Saltykov] I will have to, but.... If we enter the market, there simply indexing is envisaged for state enterprises, while the wage forms, it is not fixed....

[Ponarina] Incidentally, in past years a large number of new academies sprang up to spite the large Academy and its monopolism. The Engineering Academy, the Academy of Technological Sciences, the Academy of Natural Sciences, and others. Do they have the right to lay claim to the state budget?

[Saltykov] For the present only the Russian Academy of Sciences is recognized as a state academy. The rest are public organizations. In order to give them state finances, even in case of very serious substantiation of this request, it is necessary to have a special decision of the government and the Supreme Soviet, a document of the rank of the president....

[Ponarina] But do you yourself have anything to do with these academies?

[Saltykov] I have nothing to do with any academy.

[Ponarina] Well, except for the fact that you are yourself an offspring of the USSR Academy of Sciences, who worked his whole life at an institute of it. And, judging from your statements, you feel both a strong attraction to science and respect for it. But what about the other members of the government? What about the president?

[Saltykov] Both the president and the government have a clear understanding of the importance of science for the country. This is indisputable. But there is not enough money for its support. I myself am one of the 24 new ministers, who attend meetings and hear (I am naming cities arbitrarily): In Chita there is fuel for two days, in Moscow there is food for a day, the Bank for Foreign Economic Relations is bankrupt, there is not a dollar there. As a human I cannot bring myself to ask here for a billion for myself. I was trained that way. But this is an everyday feeling. We are forecasting the budget. More or less confidently for the first quarter. Then we will make monthly allocations. Incidentally, we have lived that way for a year now. There is nothing good in this for science. But it is impossible to renounce the society in which you live.

[Ponarina] Thus, are losses inevitable?

[Saltykov] A tragedy is not needed. Our scientific research institutes earlier were opened easily, in the 1960's the growth rate of scientific personnel came to 7-8 or else up to 12 percent a year. Everyone—monks having taken vows of schema, businessmen, and loafers—got together in laboratories. The first had if only enough strength to look into a test tube, the second wanted to introduce every nut of theirs in production. The third are not mentioned. Together everyone feels sick. Each person has his own path. And this finally began to appear.

Now not without reason are 320,000-350,000 people in our country already employed at scientific and technical cooperatives, about 60,000-70,000 people work at all kinds of small enterprises.... They are selling what has been made. By them personally or by entire collectives. Here it is a question of intellectual property, but for the people this is a blessing: A real commodity, which previously did not exist, is appearing. Such drains of personnel from pure science are not a loss, this is a natural search for an ecological niche.

[Ponarina] You, it appears, are from the category of optimists. Then the question, as they say, is closer to your job of management: Is one department capable of copying with what several barely made go? The USSR State Committee for Science and Technology, the USSR Academy of Sciences, the USSR State Committee for Standards, the RSFSR State Committee for Science and the Higher School....

[Saltykov] We do not have the functions of the State Committee for Standards. It exists independently. But then for the present the Higher Certification Commission and the State Patent Office (any moment it will be renamed the Russian Patent Office) are in our company.

Incidentally, these are trifles. It is a more complicated matter with science of the military-industrial complex, which now—for the first time—has passed to the "citizen." It passed to it as an expensive gift. Formally eight of the nine defense ministries have now become a part of the Ministry of Industry of Russia. But there are there several large national research centers, which should hardly be industrial. Rather, they should be independent. But through whom are they to be financed? In our country three-fourths of the state budget was spent on military research and development. In essence there were defense science—basic—and all other science. Consider: Twenty two industrial ministries, all the academies, and all the higher educational institutions swallowed up only one-fourth of the budget. Now the military-industrial complex does not exist. And the same science knows nothing with respect to its future.... It is difficult to understand this entirely.

[Ponarina] Especially when 24 ministries were made out of 80 ministries. It appears that complete confusion will be the cost of the populism of this decision.

[Saltykov] The danger exists. The hope, apparently, is for the great independence of enterprises, institutions, higher educational institutions....

[Ponarina] They say that you requested in connection with this a staff of more than 1,000.

[Saltykov] One thousand two hundred. More than 400 less than the sum of the staff members of the structures that became a part of the ministry.

[Ponarina] And the final thing. About three weeks have passed while you have been in this position of ministry. Of what have you already had time to despair?

[Saltykov] Nothing. Although...of the fact that scarcely any free time will remain. There are even no Sundays. Now there is the fulfillment of official assignments, now, like yesterday.... The entire day on television. In Ostankino. Several hours of a business game on day "X." The day of the liberalization of prices.

[Ponarina] Did you play your role of minister of science?

[Saltykov] No, simply the role of a member of the government. Moreover, on a team of observers. We, the members of the government, sat a floor higher and watched how the team in the hall, below, played for us.... We adjusted the actions, at times gave some scenario instructions, which were perceived as a change of the situation. In short, we simulated the behavior of the government, the regional administrations, the people, the press, entrepreneurs....

[Ponarina] And how was it for science, for the higher school? What decisions to save was it possible to make?

[Saltykov] It did not come to science. And in life, incidentally, everything will be that way. First scientists will feel the blow simply as citizens of this worn out country, while in a month or two, at most a quarter, science as a structure will feel it. That is, it will have to hold back the blow for a long time. Such is the fate of the intelligentsia. But it will have to endure. You cannot escape fate.

Brazil Denies Recruitment Drive for 'Soviet Scientists'

927A0103A Moscow RABOCHAYA TRIBUNA
in Russian 11 Jan 92 p 2

[Article: "They Are Not Hunting for Our Scientists. They Are Simply Inviting Them"]

[Text] The spokesman of the Brazilian Ministry of Foreign Affairs denied the reports, which appeared the other day in a number of newspapers, that state institutes of this largest country of Latin America were conducting a large-scale "hunt" for scientists and highly skilled specialists from the republics of the former Soviet Union. Thus, the newspaper FOHLA DE SAO PAULO wrote that the Brazilian Ministry of Foreign Affairs had recommended to its ambassadors "in the former communist countries" to devote priority attention to the question of "the importing of minds" to Brazil.

"These publications are a great exaggeration," Fernando Barreto, spokesman of the Ministry of Foreign Affairs, stated to a TASS correspondent. "In reality the steps being taken by us do not go beyond the drafting of a program of the possible use in Brazil of highly skilled scientific personnel from the former USSR. The government wants to determine the form of the attraction of the specialists who will express the wish to conclude contracts for work at scientific centers of the country."

At the same time the spokesman of the Brazilian Ministry of Foreign Affairs acknowledged that similar programs are already being implemented by the governments of a number of states and by universities. Thus, for example, since last year six specialists in the area of applied mathematics, physics, chemistry, and information science from the Kazan Aviation Institute have been working at the university of Ijui (the state of Rio Grande do Sul). Recently the governor of the state of Sao Paulo, which is considered the most important science-industry center of Brazil, allocated assets for attracting a group of foreign specialists in the area of the latest technologies to three local universities. For the most part these are scientists from the former USSR. As has become known, the first of them arrives in Sao Paulo in February. At that time the arrival in the Brazilian capital of four Ukrainian specialists for work at the International Physics Center is expected.

Scientists Abandoning State S&T Institutes for Private Enterprise

927A0103B Moscow KULTURA in Russian No 1.
4 Jan 92 p 2

[Article by Doctor of Economic Sciences Prof. Vladimir Kostakov: "The Brain Drain Within the Homeland"]

[Text] A young scientist, who completed graduate studies and worked successfully on his dissertation, suddenly changes his destiny drastically. From the institute, where they set great hopes on him, he leaves for a

private firm to head the marketing department. The reason is obvious: In science he is "worth" 350 rubles [R], in business he immediately begins to earn 1,200, and this is not the limit.

I am closely acquainted with this specialist and have a good idea of his capabilities. For the institute, where he worked, and, perhaps, for economic science as a whole his departure is not a great loss, but still is a loss. Businessmen use the concept of lost advantage. Here there is also something similar, only in the form of intellectual output. But what about his own future? It also seems problematic to me. As an economist, he is rather well trained, but not in the way and not in what his new occupation requires. For the present this might not limit him: Domestic enterprise is going through a period of dilettantism. But it has already begun to forge personnel for itself. Sharp-tongued, specially educated marketing experts are beginning to appear. Stiff competition is inevitable.

This process of the migration of personnel from state structures to the emerging world of business appeared clearly in 1989, in 1990 intensified, and last year became avalanche-like. And here the change of occupations and types of activity is occurring on an enormous scale. Five and a half million certified specialists worked where their high skill was absolutely not needed. How many of them will there be now?

People usually talk about the "brain drain" only in connection with migration. But here, too, a drain is also occurring—the squandering of the intellectual potential. People become specialists over the course of many years, accumulating knowledge and experience. And all this goes nowhere, when they leave their work.

We are probably the only country in the world, where a more educated person nearly always is inferior in income to a less educated person. Now not many people remember that it was not always that way: Before the war both the teacher and the engineer earned more than a worker. Whatever we think about Stalin, he valued the intellectual potential. The war and the pace of the restoration of what was destroyed confirmed the correctness of his reckoning. The degradation of the intelligentsia began under Khrushchev. At that time, incidentally, correspondence education achieved an unjustifiedly broad scale. The prestige of erudition declined.... That is not last of all why society came to be where we see ourselves today.

Now this old disease of ours is entering a new phase. The difference in income, in the spheres, which are connected with commerce and are far from it, is dispersing personnel not simply among different levels, but among different worlds. And precisely the areas of the exertion of efforts, on which, strictly speaking, the intellectual potential depends, where it is formed years and decades in advance, are finding themselves in the most disadvantageous position. Science, particularly basic science. Education. Art. Culture.

Of all the people employed in the national economy, according to the data for 1990, 16 million, or 11.5 percent, are specialists with a higher education. We are not the most educated people in the world, an end has been put to the illusions, but there are also no grounds for excessive self-humiliation. The price of knowledge and the human qualities, which come together with an education—for example, the ability to adapt to rapidly changing conditions—is increasing with each day. But this in no way affects income. More than half of the certified specialists have a fixed wage. Here for 32.4 percent of the men and 57.6 percent of the women the rate does not exceed R200 a month! People will say to me: Now they are giving all of them raises. Yes, the figures will be different. But the ratios will remain the same, inasmuch as these raises are being calculated from the same wretched base.

Now, in the situation of an acute financial crisis, this discussion may seem pointless. But for the present nothing testifies that in case of the formulation of economic programs this problem is if only realized. Before our eyes there are a large number of examples similar to the one, with which I began: A person earned R250-300, and suddenly he "jumped" to 1,500-2,000! But no one is tracking these processes of stratification, not to mention thinking about how to manage them sensibly. We do not even have wage statistics by occupations—the processing of data is carried out only by sectors and categories of employed people. But such information is necessary—and namely as a single, undivided file that encompasses the entire space of the former Union.

I have not found a single serious work, although I am carefully tracking this, in which substantiations are given: How much should a physician earn? Or a teacher? I am not talking about specific amounts—I am talking about the principles. There are methods of calculation, which make it possible to establish how much, given existing prices, the reproduction of manpower costs. But there are no methods that are oriented toward the reproduction of intelligence. A teacher, so that he could develop professionally, needs books, now, obviously, no less than a computer and video equipment. His working time should not be measured by the number of conducted classes: He needs some part of the day for work on himself. All this, and not only the needs for food and clothing, should also be incorporated in his wage. In our country they never thought about this. On the contrary, it turned out that substantial incomes flowed to people with limited, undeveloped needs (and this, by the way, "fed" alcoholism).

Perhaps, what is happening now is perceived as one of the first flutters of the market economy, which should intensify the polarization in society. But no. We are still a long way from a market, in which an objective price will be set for everything, including labor. We are just entering the transition period. In essence, there are not yet any market mechanisms that are capable of operating in automatic mode. And it is necessary to distinguish

precisely: Where the relaxation of administrative state regulation increases the degree of economic freedom, and where it intensifies the elements of chaos.

Other channels of the "brain drain" also remain. Conversion may actually become one of them. There is much talk, but in practice—in the compiling of programs of the change of specialization, in the initial expenses—the main load falls to enterprises and scientific centers themselves. This seems to be so modern, so in the spirit of today's spirit—independence, initiative, resourcefulness! But on closer examination everything proves to be not that simple. In the product cost "defense" always incorporated a high wage: This also enabled it to assemble personnel who are very good with respect to the occupational and intellectual level. With the changeover to civilian products these powerful collectives immediately find themselves in a disadvantageous position, many of them might disintegrate.

An official of a central department. An officer. Yes, in their former functions they may turn out not to be needed by society, and the fact that they will no longer be a burden on the budget will benefit it. But what will happen with them, with these people? I am not even talking about how they will earn a living, although this is also very vital. But these are also the same "brains," of the preservation of which we are taking such care in words. In our country a labor market has not yet formed, services supporting it, so that it would be possible to say: What is next is the personal affair of each person, have not formed. In a recent television interview one of the directors of an employment service said: Associates of disbanded ministries are applying to us, but no one needs them, we cannot offer them anything except positions in the service sphere. But is this the case? More likely there is here not so much a shortage of workplaces as a shortage of information of the service itself, which thus far has not yet obtained an opportunity to develop properly. But in reality we are still very far from the situation, when an educated specialist, who trained many years in serious labor, could prove to be "not needed by anyone."

But now, perhaps, the most complex and painful turn of our theme: the territorial turn. The interrelations of the former republics which have become sovereign states. The nature of the ties between them. Very much has been said about what kind of losses the breakdown of the established intereconomic cooperation is turning into—when the only plant, which supplied the entire country with its products, finds itself "beyond the cordon." But this, although complicated, is not fatal—it is possible to buy any item and, if worst comes to worst, to barter. But is the threat of losing what is irreplaceable being properly taken into account in political decisions?

No matter which of the republics we take, the intellectual potential that it has was formed after its joining of the Union, regardless of whether it was voluntary or forcible. It, this potential, exists as a given and can either be preserved and multiplied or be cast to the wind.

The most massive example. There live outside Russia 25 million Russians, of them approximately 14 million are of able-bodied age. If we take into account the coefficient of employment, we will get more than 11 million. This is approximately one-sixth of the personnel who constitute the army of labor in the former union republics. Even if it were a matter only of the number of hands, we have before us quantities, the disregard of which can prove to be fatal for the economy. But there is more to it. The national structure on the majority of territories is superimposed in such a unique way on the structure of employment that the departure of the "nonindigenous" population, or whatever else they call it there, is capable literally of bleeding entire sectors of the economy.

In the Central Asian states, for example, the local population is drawn to agriculture. Uzbeks, according to the data of the 1989 census, make up 67.7 percent of the people employed in Uzbekistan, 83.9 percent of them work on the land. There is a similar picture in Tajikistan (56.9 and 63 percent) and in Kyrgyzstan (47.2 and 67.6 percent). But in the sectors, which are key ones for the economy, the share of the indigenous population does not come to one-half. Machine building and metal working: Uzbekistan—44.7 percent, Tajikistan—39.8 percent, Kyrgyzstan—23.6 percent. Chemistry: Uzbekistan—44.8 percent, Tajikistan—33.9 percent, Kyrgyzstan—29.2 percent.

The overall picture of employment in each of the states has its own specific nature, but everywhere there are similar disproportions that are fraught with an enormous threat. In Estonia among those employed in peat production Estonians do not amount to one-fourth. Chemistry and rail transport exist everywhere mainly at the expense of "newcomers"....

"Russian-speaking people" are also very conspicuous among the experienced personnel in the spheres of intellectual labor. Among engineering and technical personnel in places they make up much more than half. Their positions in science and in the higher school are very strong. With their migration a gaping void may form among experienced personnel. But in Russia, too, these people will not immediately be able to find themselves employment, that is, the loss will be twofold.... I often ask myself the question: Do politicians know these data? Do they coordinate their decisions with them?

It hurts to lose. It hurts to see off abroad, for a long time or forever, educated, talented, energetic people, who are capable to doing so much for the country, which is going through hard times. But does it really not hurt threefold more to lose here, within the homeland?

USSR GKNT Transition to Republic Control Described

927A0048B Moscow RADIKAL in Russian No 41,
17-23 Oct 91 p 1

[Article by Feliks Vladov: "And I Want To Go Home, to Russia.... Science and the Higher School: On the Way From the Union to the Republic"]

[Text] It all began with education. On 3 September I. Silayev, at that time still chairman of the RSFSR Council of Ministers, signed Decree No. 456 "On the Activity of Institutions and Organizations of the System of Education on the Territory of the RSFSR." The USSR State Committee for Public Education was ordered "to transfer to the jurisdiction of the RSFSR Ministry of Education and the RSFSR State Committee for Science and the Higher School as of 1 August 1991 the entire material and technical base of the committee and the institutions subordinate to it, as well as the network of scientific research and educational institutions, medical and rehabilitation organizations and enterprises, which are located on the territory of the RSFSR." The other union ministries and departments (except for the Ministry of Defense, the Ministry of Internal Affairs, and the KGB) by the same decree were obliged to transfer to Russia the general educational schools, vocational and technical schools, higher and secondary specialized educational institutions, as well as other enterprises and organizations of the system of education, which are subordinate to them and are located in the territory of the RSFSR.

That is how the protracted dispute over whom the educational institutions located in Russia should belong to concluded. The turn of science had come. On 9 October—incidentally, precisely the day when the last, one must suppose, General Meeting of the USSR Academy of Sciences began—the RSFSR Council of Ministers adopted Decree No. 524 "On the Establishment of State Structures of the Management of Science, Scientific and Technical Progress, Standardization, Metrology, and Patent Affairs on the Territory of the RSFSR." By this decree "the pursuit of state policy in the area of science and scientific and technical progress on the territory of the RSFSR" is assigned to the RSFSR State Committee for Science and the Higher School (GKNVSh).

At the same time: "With allowance made for the suggestions of the USSR State Committee for Science and Technologies on the transfer of this committee and the organizations and structures, which are subordinate to it, to the jurisdiction of the RSFSR, the RSFSR State Committee for Science and the Higher School is ordered to take over as of 1 August 1991 the entire material and technical base of the USSR State Committee for Science and Technologies proper, as well as the institutions, enterprises, and organizations, which are under its jurisdiction and are located on the territory of the RSFSR." And, finally, the appropriate departments of Russia are ordered "to prepare and to submit to the RSFSR Council of Ministers by 1 November 1991 suggestions on the material and technical supply and financial support of the associations, enterprises, institutions, and organizations, which are being taken over," while the RSFSR State Committee for Science and the Higher School is obliged to draw up a draft of the plan and budget of the RSFSR in the area of science and scientific and technical progress for the next year.

Thus in the recent (see RADIKAL, No 38) dispute of the two first deputy chairmen of the USSR State Committee for Science and Technologies, I. Bortnik (to set up on the basis of the committee an interrepublic—or now it is more correct to say "interstate"—scientific council) and V. Mikhaylov (to come under the jurisdiction of Russia), the point of view of the latter won.

How will this transfer take place in practice? For the present it is impossible to say exactly, but, in the opinion of A. Suvorinov, director of the Center of the Organization of Scientific Research of the RSFSR State Committee for Science and the Higher School, the following scenario is most likely. About 50 staff members of the Russian committee, who are dealing in it with questions of the organization of science, move to the building of the State Committee for Science and Technologies on Tverskaya. It is easy to do this especially as of the more than 600 staff members of the union department after the recent reduction less than 500 remained. At the same time a letter with the substantiation of the staff of the future subdivisions of the State Committee for Science and the Higher School of 900 and with a request for the appropriate financing was sent to the RSFSR Ministry of Finance. Thus far there has been no official response to the letter, but it also did not cause a negative reaction in the Ministry of Finance.

Until the receipt of this response the State Committee for Science and Technologies both operated and will operate, especially as in it, in the opinion of the management of the State Committee for Science and the Higher School, there are many experienced, capable staff members who know well the specific nature of scientific activity. After the opening of financing the personnel of the new subdivisions of the Russian committee will be recruited precisely from among them.

For the present it is too early to talk about the structure of such subdivisions, their hierarchy, and so forth: All this—just as scientific priorities—is still at the stage of elaboration (although it is already known that about six state scientific and technical programs, the fulfillment of which will take place under the patronage of the President of Russia, will, apparently, be singled out).

Of course, when all these probabilities turn into certainties, RADIKAL will tell the readers about this.

Moscow Mayor's Seizure of Academy of National Economy Protested

927A0048A Moscow RADIKAL in Russian No 39,
9 Oct 91 p 3

[Article by Nadezhda Ilinskaya under the rubric "Fact and Commentary": "The Unlawful Action Has Been Halted, the Property Dispute Continues"]

[Text] "Legal boundlessness"—that is how lawyers of the Academy of the National Economy qualified the order of Moscow Mayor G. Popov to put under militia guard the buildings of the educational complex. The undisguised

robbery action was dictated by the impatience of G. Popov to assume another post: He was appointed by an order of M. Gorbachev the president of the International University. Incidentally, this post is an elected one, as R. Sagdeev, codirector of the International Fund for the Survival and Development of Mankind, which is a founder of the institute, noted.

According to the initial plan the university should have been located in the building of the former Academy of the National Economy attached to the CPSU Central Committee. But, as it turned out, judicial instances will decide the fate of party property. But while the hearing dragged on, the mayor of the capital pondered a version: He hastily issued an order on the transfer of the professors and instructors of the Academy of the National Economy to...the Academy of Social Sciences, while he ordered the Moscow militia to put under guard the fancied buildings of the Academy of the National Economy.

Thus by a stroke of the pen the prestigious school of practical economics, which had trained personnel at a modern level, was deprived of property worth tens of millions of rubles; in this case special computer classrooms, audio-visual instruction aids, which had been supplied by western partners of the Academy of the National Economy, and a sports and rehabilitation center with the latest equipment and methods for the correction and restoration of health.

The unlawful action of the authorities also appeared in the following fact: The order without an ordinal number on the placing of the Academy of the National Economy under guard was received late in the evening of 18 September, so that the next morning students, professors and instructors, and personnel, who knew nothing, were stopped at the gate by a militia cordon. The police sanctions of the mayor evoked a negative assessment of the world community. Hundreds of telegrams and appeals with support were received by academy rector A. Aganbegyan. Here are a few of them. "We condemn the order of the mayor of Moscow, in accordance with which the militia halted the activity of the Academy of the National Economy—a leading research and educational center for the training of managers of the market economy," Lawrence Klein, Nobel Prize laureate; Gerard Adams, a professor of the University of Pennsylvania; Bert Hickman, a professor of Stanford University.

"The suspension of the activity of the Academy of the National Economy is at variance with democratic principles and processes"—Peter Pauli, an economics professor of the University of Toronto.

Starting on 19 September for six days 500 students from all republics, foreign specialists, who had come to study the Soviet market and had paid considerable currency for instruction, together with the collective of the academy fought for their legal rights, which had been trampled by the lawful authorities. G. Yavlinskiy was also among the victims. He was unable to obtain sealed

materials, which had been prepared for him by researchers of the Institute of Economic Policy—a structural subdivision of the Academy of the National Economy.

The educational process and the work of the academy were restored only on 25 September after a protest of the Moscow Procuracy. City Procurator G. Ponomarev, having familiarized himself with the circumstances of the conflict, issued the ruling: "The order of the mayor of Moscow contradicts the requirements of the law and is to be rescinded. The implementation of the order," the procurator writes, "led to the violation of the rights and legal interests of instructors, students, and personnel of the USSR Academy of the National Economy." Guided by Article 176 of the RSFSR Constitution and Article 24

of the Law "On the USSR Procuracy," G. Ponomarev brought an objection: "To rescind the order on the termination of access to the building of the USSR Academy of the National Economy of its students, professors and instructors, and personnel. To take steps on the resolution of the dispute as prescribed by law."

Now it is not yet possible to regard the conflict with city hall as finished: Public apologies should be made to the collective and the losses should be reimbursed.

Several of the 40 largest foreign companies that are partners of the academy intend to appeal to the international court in The Hague. Business ethics are based on the right of law, not force, as economist G. Popov, a supporter of market relations, should know.

Russian Programmers Form International Software Exchange

927A0124B Moscow NEZAVISIMAYA GAZETA
in Russian 6 Feb 92 p 6

[Article by Yuriy Meshkov under the rubric "Science": "Educational Programs Will Be Free. The Public Domain Computer Programs Fund Has Been Established"]

[Text] "The inability to develop advanced computer technologies is one of the causes of the downfall of our state. At one time the military-industrial complex undertook this and failed, because this matter requires freedom, not secrecy." F. Shirokov—vice president of the Electronics of Russia Union attached to the innovation fund of the Committee for Science of Russia—gave such an assessment when addressing the constituent conference of the International Public Domain Computer Programs Fund.

During the last days of January all but the first step in the direction of joining the world brotherhood of programmers was taken in Moscow. The traditional inclination of the military-industrial complex for secrecy forced the best minds of this field to develop in isolation, keeping aloof of the extremely dynamic process of world computerization. Instead of civilized cooperation open stealing in the area of computer programs thrived in our country.

The international fund that is being established envisages the bilateral exchange of applications programs. Thus, domestic programmers will be afforded the opportunity to familiarize themselves promptly with the most advanced software product and, moreover, to advertise their own developments abroad. Moreover, all this is free or for a purely token payment, which includes only the expenses for the duplication of programs, but not their development, which costs immeasurably more. (In the West the labor of a skilled programmer is valued so much more than that of our programmer....) But the peculiarity of public domain programs is that users get them free. Their availability is not simply declared, but is also supported by the necessary procedures. Is it worth saying how important this is for educational institutions and in general for the implementation of any educational programs?

True, we have already had cases of the sale of similar programs, which were supplied by western countries free of charge to everyone who wanted them. But, as F. Shirokov believes, each such case should henceforth be made public without fail with the subsequent taking of all possible steps of social and legal pressure against "businessmen" of this sort.

About 100 organizations have stated the desire to become cofounders of the fund in our country. By the middle of February during the second stage of the

constituent conference the adoption of the charter of the fund and the documents necessary for registration is expected.

Programmer Faults Proposed Copyright Law

927A0124A Moscow POISK in Russian No 3 (141),
11-17 Jan 92 p 1

[Article by Irina Savelyeva, member of the board and chief legal consultant of the Association of Suppliers of Software Products, and docent of the Law Faculty of Moscow State University]

[Text] Legislation, which protects the rights to intellectual property, is absolutely essential. Thus far all the relations in this area have been regulated by the Civil Code, in which there is not even mention of software products. Meanwhile this type of activity is becoming one of the independent and promising directions of business.

Today one of the drafts of the law "On the Copyright in the RSFSR" is in the Supreme Soviet of Russia. It was drawn up by a group of specialists under the direction of M. Kuznetsov.

This draft does not satisfy in practice the basic requirements of international conventions. In a number of instances it directly contradicts the special directive of the European Economic Community on the protection of computer programs, which was adopted at the end of 1990.

The pirate use of the software products of others is the greatest disaster of the present information market. For example, a large number of articles, which propose serious, including criminal, liability for such actions, exist in the similar law of every civilized country. Thus, in the legislation of, for example, Malaysia three entire pages are devoted to listing the degrees of liability for piracy. In the draft of our law such a thing is not envisaged.

And there is another serious oversight of the draft of the law. This is the legal regime of so-called service programs, that is, programs written on the order of the employing firm. In world practice there are two approaches to the settlement of this issue. Anglo-American legislation presumes the ownership of all the rights to such a software product by the firm itself, at which the writer of the program works at this moment. In the countries of continental Europe the presumption of the authorship of the writer of the program exists, but the use of the software product is governed by a labor contract with the developer.

The passage of the law in its present form can directly harm the software market and the contacts of Russian and foreign software producers.

Reforms Convert Military Secrets to Commercial Secrets

927A0132A Moscow RADIKAL in Russian No 48,
11 Dec 91 p 2

[Article by Valeriy Kamnev: "Novid Sells Military Secrets"—first two paragraphs are RADIKAL introduction]

[Text] As we progress toward a market we are becoming more and more convinced that Russia can deal not only in "bristles and hemp." The defense complex is finally opening its secrets a little to people who are interested.

Just recently the military tried to keep secret all but the multiplication table, and, it appears, the cot with a frame made of aluminum tubing, which was presented to us by the aviation industry, remained the only well-known fruit of conversion from the times of the Great Patriotic War until recently.

Today, thank God, the situation has changed. The appearance of the Novid Association, which is headed by Eduard Melikov—the author of more than 350 inventions, which for the most part are aimed at strengthening the defensive might of our country—was one of the results of this change.

"They have permitted us to reregister many of the technical ideas, which previously were 'secret,'" says Melikov, "including mine, as open ones, having adapted them, of course, for nonmilitary use. Now we are busy precisely with reregistering them here in Russia and trying to patent them abroad."

The use of "defense" inventions is a most vast and most beneficial sphere of activity, too many of them accumulated here in past decades. Novid, in the words of its president, Melikov, has this commodity in very sufficient quantity. One of the first inventions, which Novid is proposing to put on sale, is "the protection of buildings and structures against shock and seismic waves."

In general this is an entire science—to protect a house against an earthquake. It is possible to change the properties of the soil, it is possible to use special materials during construction, it is possible to build casements with incredibly thick and strong walls, it is possible, as in the United States, to reinforce skyscrapers with "tie bands"—in short, it is possible to learn to

cushion the shocks. But it is possible, as Melikov proposes, to divert these shocks by applying counter shocks. In short, it is possible to greet an earthquake with one's own small earthquake.

Unfortunately, we cannot go into the details of this, believe me, very ingenious idea, inasmuch as, having lost military significance, they have become the subject of a commercial secret. Suffice it to say that such active protection is a system of rings, which encircle the vicinity of the object that you want to save from an earthquake, and when a seismic wave encounters this system of rings, it passes around them, destroying everything around, but without penetrating inside the rings. The system, in the words of the authors, is very effective and can reliably repel up to 10 shocks following one after another.

The potential buyers? Anyone of the people living in earthquake-prone regions. For example, the residents of Istanbul, which, judging from reports in the press, for a quarter of a century was seismically very fortunate and only now has learned about the danger threatening it.

Turkey itself for a long time has suffered from earthquakes, moreover, since the 1930's their number has increased appreciably. Here, along the North Anatolian Fault—the line uniting the Carpathians and the Aegean Sea—the Eurasian and Turkish continental plates touch. As Turkish and German geophysicists, who worked on a joint project, recently established, Istanbul with a population of many million, which all these cataclysms did not affect, owes its tranquility to the fact that it is located in a kind of seismic gap, to which seismic waves cannot reach from outside. One could live and rejoice, if it were not for one unpleasant circumstance: Internal stresses, the release of which can lead to an unexpected and very strong earthquake, build up over time in the depths of such a gap. In the opinion of seismologist Tshao, precisely such an earthquake now threatens Istanbul. It is the right time for Istanbul, which has not been adapted for underground shocks, to acquire a protective ring and to construct within the natural gap an artificial one, where stresses will no longer build up.

The contact telephone numbers of the Novid Association are 2843725, 2882950.

Ukraine Still Lacking Patent Office, Laws
927A0096A Kiev VECHERNIY KIYEV in Russian
3 Dec 91 p 2

[Article by Honored Inventor of the Ukraine Valeriy Bryzhko, Leonid Nikolenko and Aleksandr Pichkur, staff members of the patent and license division, under the rubric "We Discuss the Problem": "Why the Ukraine Needs a Patent Office"—first paragraph is VECHERNIY KIYEV introduction]

[Text] Our economic formation depends on a large number of factors. The authors of this publication believe that the formation of a system of patent relations is one of the most important ones.

Misoneism Is Like Patent Bureaucracy

At the beginning of the century Russian patent expert A. Engelmeier noted that the psychological condition of misoneism—aversion to what is new—was prevalent among people. This term did not take root, the concept "bureaucrat" became widespread. A struggle was always waged against him. In the advancement of inventions even up to criminal liability. But, what is interesting, in spite of such rigorous measures the state of affairs did not become better. And this is completely natural, for bureaucrats were simply a lightning rod for popular discontent.

However, for fairness' sake it is worth looking at the other side of the coin as well. There is no such inventor who would not consider his creation the best in the world. But, according to data of the United States, for example, of every 10 inventions, which have gotten through the scientific research stage, only two provide commercial success. And the actual expenditures on design and experimental work prove to be several fold greater than the estimated expenditures. This is "there." While in our country they confine themselves just to a statement—an invention or not an invention.

A Self-Removing Cap for the Ukraine

History knows a large number of examples, when things no one needs, up to a guillotine for flies or self-removing caps, were invented and "forced their way through." Therefore, the sifting out of the avalanche of excessively pretentious and simply illiterate applications for inventions is an important means of protecting society.

In spite of the big changes in the life of the Ukraine, one need not talk about a fundamental change of the attitude toward invention. The law on inventions in the country, which took a decade to draft, in the middle of last year was hastily put into effect, in spite of the serious critical remarks of representatives of individual republics.

In October a working group (except for representatives of the Baltic republics and Georgia) formulated the principles of the temporary Agreement on the Patent System, which operates until the signing of an interstate

convention on the protection of industrial property, and drafted a number of other documents.

The members of the working group came to an understanding about the possibility of signing the drawn-up documents at the end of November for a period of one year with the subsequent signing of the interstate patent convention. The possibility of drafting republic patent legislation is an important feature.

Incidentally, in Russia the concept of a national patent system has been devised, a model of it, which includes the introduction of a Russian patent and its own patent office, is being developed, and money has been allocated.

What about in the Ukraine? We do not have a clear idea of the patent as a commodity which has commercial value. International conventions, incidentally, define inventions as objects of industrial property. And it is hardly all the same to our sovereign republic, to what department the monetary fees of its own inventors, as well as patentees of foreign countries are paid. Precisely for this reason no country gives up national patent law. The formation of the Ukraine as a sovereign republic cannot but also provide for sovereignty in the area of patent law, particularly the establishment of a national patent office.

What the Patent Office of the Ukraine Can Be Like

The first version. As a completely sovereign body. The republic has its own patent. The estimates of the monetary expenditures in this case are approximately 76.8 million rubles [R] as the first installment. However, the office will be established not in a "bare" spot, which will reduce the initial expenditures. The affording of services and the marketing of patent and other information make it possible to reduce the expenditures by another 15-20 percent, that is, by R8-10 million. But considering that the functions of the registration of applications and patent examination are self-sufficient, the cost of the office will come to about R53.6 million.

But, alas, this version cannot be optimal owing to the lack of justification of the complete severance of ties with the USSR State Patent Office, which can play the role of a regional patent office of the republics by analogy with the European Patent Office.

The second version. The absence of a patent office in the Ukraine. In this case the nonreturnable budget expenditures of the Ukraine will amount annually to no less than R1.5 million for the stimulation of invention activity. A significant amount will also be needed for special financial contributions to the budget of the interstate patent office, and this is more than R16 million.

And there is more. Whereas we will be in the system of the USSR State Patent Office, the question of joining the European Patent Community remains problematic.

The third version. The Patent Office of the Ukraine operates autonomously, the republic has its own patent,

but a portion of the work on patent examination is turned over on a contractual basis to the USSR State Patent Office.

The monetary outlays in this case are comparable to the outlays of the first version. However, owing to the higher quality training of experts of the State Patent Office, the possibility of maintaining application documents and patent examination at the proper level exists. And hence an increase of licensing activity and the more prompt flow of money for licensing into the budget of the Ukraine.

How They Are Getting Rich From Patents

Products worth \$920 billion are being produced in the world on the basis of foreign licenses. According to data of the United States, 44 percent of the increase of labor productivity after World War II occurred due to technical achievements. Having spent \$24 billion on the Apollo Program, the Americans earned on patents alone \$300 billion.

And the experience of Japan testifies that the patent system actively promotes the development of scientific research, the creation and introduction of inventions, the increase of product quality, and the spread of knowledge and prevents the sale of counterfeit goods. The activity of many Japanese firms confirms this. For example, the Sony Corporation appeared after the war, seven people were employed at it. The first president of the corporation noted: "Patent affairs are in the hands of our highest leaders. This is our policy."

By studying this experience, it is possible to draw the conclusion that the level of economic sovereignty and material well-being of one country or another to a great degree depends on the state of the patent system, the viability of which is determined by the efficiency of the work of the national patent office. So is it not time to proceed to concrete work?

We hope that this publication will find a response among the broad masses of inventors of the Ukraine, will awaken the patriotism of the officials, who can influence the origination and formation of a national patent office, and will speed up the settlement of this question.

The authors are transferring the fee for this publication to the fund for the establishment of the patent office of the Ukraine.

Patent Laws, Policy Ambiguous With Union-Republic Power Shift

927A0050A Moscow RADIKAL in Russian No 41,
17-23 Oct 91 p 2

[Article by Sergey Stepanenko: "A Patent as Against an Inventor's Certificate?"]

[Text] Until recently the Siamese twins—invention and patent affairs—being content with crumbs from the master's table, were considered stepsons and only

dreamed of a better lot. Finally it has come to pass. The new "Law on Inventions in the USSR," having changed abruptly the very approach to inventors, invention, and patent affairs, transferred the "twins" to the rank of favorite children with all the ensuing consequences, the main ones of which are a changed system of stimulation and an increase of social status.

But one will have to postpone the tossing of caps into the air. The situation is tiresomely familiar: the law, which was passed by the USSR Supreme Soviet, is the next clothes of the fairytale emperor. With the difference that they exist, but no one gazes fixedly at them. At any rate, on the territory of Russia the law is not valid. Here the "war of laws," which has set one's teeth on edge, has nothing to do with it. The explanation is quite simple. The union law was written during the times, when the USSR Supreme Soviet did not accept any proposal from the republics. As specialists suggest, provisions, which are unacceptable for Russia, since they do not match up with the legislative base of the RSFSR, were incorporated in the union law. But if delimitation has occurred, the mechanism of the review and correction of this document in the Supreme Soviet of the republic, which thus far has not been done, begins to operate. But, as one of the greats often said, a country without patent laws is capable of crawling only backward.

But at a recent press conference of the leadership of the USSR Union of Innovation Enterprises and the USSR State Patent Office Yuriy Pimoshenko, deputy chairman of the innovation union, gave a good account of the new union law! He said that "the main difference of the new law from all preceding documents is the changeover of invention in our country to a patent system," that this is "a revolution with respect to inventors, if you wish, the capitalization of intellect." "The old system," Pimoshenko stressed, "was characterized by the fact that all inventions, which were developed at state enterprises, were declared state property. Not a patent, but an inventor's certificate was issued for them, and any Soviet enterprise could use this invention without any preconditions. The now accepted idea of the patent fundamentally contradicts such an approach."

On the one hand, it is reassuring: the figure of the person, who has been hacked, has been nagged to death, and is being persecuted by all instances, will be replaced by the same figure, but in the hypostasis of a respected creator, who knows his worth and the worth of his ideas. Leveling is being scrapped, while a valuable idea can bring its developer 1 million rubles, and no "punishing" instance will be able to interfere with this: The law is the law. On the other hand, well-informed people simply say—this is an illusion. In a conversation with me Mikhail Tsymbalov, chief of a sector of the State Committee for Science and Computer Technology of Russia, said that they understand this in the republics, but the leadership of the USSR State Patent Office, which at this moment is pursuing this policy, does not, since questions of the legal support of issued patents do not worry them.

The situation is nearly standard for present times. The USSR State Patent Office is one of the old monolithic systems, with a rather powerful administration. Such bulky and cumbersome objects as the Institute of Patent Examination, the Poisk Scientific Production Association, and the patent library are in its inherited estate. Of course, the monopolist does not feel the desire to share even a part of his power. The republics, which earlier quietly grumbled, after August acquired a voice, proposing to leave to the union office only the examination of applications and the issuing of conclusions. While they will be able themselves to enter an invention in the register, to make the author happy with "fine crusts," and to assume the protection of

copyrights. The future, in the opinion of the "rebels," is seen in the establishment of an interrepublic patent organization by analogy with Europatent—the universal Convention on the Protection of Intellectual Property Rights. The documents, which will be issued on the basis of this convention, will be "safe-conducts" on the territory of the states which have signed the agreement. A preliminary understanding with such an organization already exists between Russia, Ukraine, Belarus, Kazakhstan, and Moldova. But in the red tape of union and interrepublic patent affairs the figure of the creator "who knows his worth" somehow is not visible. Apparently, he will have to walk for a while in the hypostasis of the "hacked and nagged to death."

Estonian Science Seeking Support From Foreign Investments

927A0079A Moscow *RADIKAL* in Russian No 44,
13 Nov 91 p 4

[Article: "Ideas for Export"]

[Text] Very soon the hopes of Estonia for export opportunities of its scientific and technical potential will undergo a rigorous vital test. The market economy is coming into its own in the republic, and scientific organizations of the republic are being faced with new problems.

The scientific world of Estonia, of course, is anxious about this. The examination of the possibilities and the analysis of the existing experience of economic behavior are now under way in Estonian science. The examples of actively working small enterprises, which emerged on academy soil, are reassuring: Many of them are so efficient that they are successfully helping with assets the institutes, from which they were once spun off. The basic research of Estonian scientists often finds support abroad and, consequently, is entirely competitive. It is obvious that they value Estonian science, in its best achievements, and are prepared for further cooperation with it.

The Law on Foreign Investments, which was recently passed in the republic, should promote such cooperation. Now it has to be decided which scientific developments need these investments first of all and how best to ensure the "convertibility" of scientific ideas.

A competent group made up of the most authoritative scientists is now preparing its own proposals for the government. A strategy of the entire science policy, which may determine the face of the republic for many years, is being formulated. The future of the Academy of Sciences of Estonia is also being discussed in this light.

Science workers and scientific and technical personnel of the republic have something with which to appear on the market. It is a matter not of a shortage of ideas, but of using or selling them profitably. For this the Tallinn Technology Park was conceived and established two years ago. It was planned to create here, following the example of other countries, a favorable environment for scientific, design, and production experiments, in which an idea, if it is viable, will be able to prove this most rapidly. Not only all kinds of services of a scientific and technical nature and premises for work, but also the appropriate conditions for the developers themselves—the preferential leasing of premises, the support of developments at the start from a special fund, the most advanced communications equipment, and so on—were planned here. However, the technology park will open its doors only in about a year and a half.

Courses for entrepreneurs are being planned under its aegis already this fall. This is natural—after all, today in Estonia there are not less than 50 small enterprises and

joint-stock companies with science-intensive products. Perhaps, they will give Estonian science a chance to remain afloat.

President of New Tatarstan Academy of Sciences Interviewed

927A0066 Kazan *SOVETSKAYA TATARIYA*
in Russian 9 Nov 91 p 4

[Interview with Mansur Khasanovich Khasanov, the president and organizer of the Tatarstan Academy of Sciences and the first deputy prime minister of Tatar ASSR, Sh. Mulayanov: "The Tatar ASSR Academy of Sciences: The First Line of a Biography"; first paragraph is source introduction]

[Text] M. Kh. Khasanov, the president and organizer of the Tatarstan Academy of Sciences and the first deputy prime minister of Tatar ASSR, answers questions asked by *SOVETSKAYA TATARIYA*.

SOVETSKAYA TATARIYA: Mansur Khasanovich, before anything else, I'd like to clarify something: Did the idea of creating the Tatarstan Academy of Sciences come about in connection with the announcement of the republic's sovereignty?

Khasanov: The declaration of sovereignty, of course, also had an effect on the outcome of that issue — to be more precise, it accelerated it — but I must emphasize that the idea of creating the academy came about as a result of the internal logic itself of the development of science in Kazan and in the republic, science whose history spans many decades. We have long been proud, and rightly so, of the fact that our Kazan is a widely acknowledged world-class science center and that the republic has a great deal of scientific manpower. And even so, those people have, until now, acted sometimes in a splintered fashion and have been isolated from one another. In order to ensure a high level of development of the basic sciences and to amplify their role in the solution of the urgent problems we encounter in our material and spiritual lives, in the republic's economy, and, finally, in the coordination of scientific research, it was deemed necessary to create an Academy of Sciences of Tatar ASSR.

SOVETSKAYA TATARIYA: You remember how it was proclaimed in the pre-perestroika days that science is a direct force of production. How, in your opinion, has that definition kept its meaning today?

Khasanov: I always perceived it in a slightly different way: science becomes a direct material force only through specific outlets to applied fields and production in the form of engineering technological solutions. An example? Here's one. Recently, our newspaper reported that we had awarded an American scientist the Ye. Zavoyskiy Prize. We are rightly proud of the fact that Kazan is the birthplace of the discovery of paramagnetic resonance. But how long did it take for that scientific discovery to become something of practical benefit to

people in the form of American, Japanese, or German medical equipment that uses paramagnetic resonance?

SOVETSKAYA TATARIYA: Let's get back to the Academy of Sciences. How, in practical terms, will the academy achieve a high level of development of science and amplify science's role in our lives?

Khasanov: In practical terms, the leadership of all science must first of all be concentrated in one place: the academy has been called upon to become the organizing, coordinating center. It will consolidate and focus the energy, efforts, and researches of the scientists of the republic to effect a solution of the most important, top-priority problems involving economics and culture. You would agree that, with our widely acknowledged scientific potential, what we haven't had in our academy so far has been an unfairness, a sad illustration of artificial infringement of the republic in the context of autonomy.

In connection with that, I'd like to refer to a testimonial that I have already, in fact, cited in one of my interviews, but it's very telling. A year ago, when I was "tossing around" the idea of the academy, I phoned an authoritative member of the presidium of the USSR Academy of Sciences who was engaged in coordinating the activity of the academies of the Union republics, and I asked him his opinion regarding an independent Academy of Sciences of Tatarstan. He answered, in essence, this: "I was recently involved in the organization of the Academy of Sciences of the Estonian SSR. If you were to compare the two, I would say that you in Kazan could easily create three academies like the one that was created in Estonia — you have enough potential to do that."

In the initial stages of discussion of the issue of our academy, this counter-argument was often brought up (of course, it doesn't come up anymore): what's the purpose, they would say, of dividing up science nationally — science doesn't have any national borders. I agree. Science doesn't recognize any national or state borders: a discovery — whether it's made in Kazan, or in Australia, or in the United States — sooner or later becomes everyone's property and serves all peoples, serves all of mankind. And the creation of our academy, I firmly believe, does not in any way isolate science; and as for the humanities, they simply cannot grow properly without intimate ties to the history, culture, and national self-awareness of the people. And the academy will help to strengthen those ties.

SOVETSKAYA TATARIYA: What will be the base — scientific, material-technical — for the academy that is being created?

Khasanov: It will stand on three whales: academy science in the person of the institutes of the Kazan branch of the USSR Academy of Sciences; VUZ science; and finally, sector science in the person of the many scientific research institutes and planning and design offices. Some may ask. But how will relations with the big academy — the USSR Academy of Sciences — be

structured? Aren't we talking about transferring the branch institutes to the jurisdiction of Tatarstan? No, we're not talking about any sort of new jurisdiction. The branch institutes will keep their status quo and their Union (or Russian) financing. But the leading scientists of those institutes will get the right to be a candidate for membership in the Academy of Sciences of Tatarstan in order to head, under its aegis, future scientific areas and to integrate the scientific forces of the republic to solve urgent problems. As for personnel in the republic, as of the beginning of this year, there were more than 600 doctors of science and nearly 7,000 candidates of science.

SOVETSKAYA TATARIYA: Here we have already mentioned twice — in the very beginning of the conversation and now — the need to focus the efforts of scientists on the solution of urgent problems facing the republic. Would you tell us, please, what problems you have in mind?

Khasanov: You don't have to go far for examples. Take oil, something that until recently we were so unabashedly proud of. Over a period of some 50 years, 2.5 billion tons have been pumped out of the ground of Tatarstan. We've given the country an immense sea of oil! And what do we have to show for it? We've ruined, you could say, the environs of the southeastern part of the republic. We've upset the ecological balance of a huge region, something that, naturally, can't help but have a pernicious effect on the living conditions and the health of the people of the region. So we urgently need to direct the efforts of scientists toward the restoration of that disturbed balance and toward an intelligent, extremely careful use of our underground treasures in the future.

A second example is agriculture. From among the multitude of problems here awaiting the energy and research of scientists, let's take selection work. Today, it's scattered about in many small spots and is done by disparate applied practitioners. We don't have a large biological science sector that could integrate in a meaningful way the research being done by the scientists — theoretical and applied scientists alike. And I could go on with examples like that.

SOVETSKAYA TATARIYA: And if we turn to the humanities? There, after all, there's probably enough "narrow" places, right?

Khasanov: That's for sure! You could probably think of it as commonplace that a whole complex of issues related to the study and development of problems of history, ethnography, culture, art, literature, and the language of the Tatar people is entrusted to one single institute — IYALI [Institute of Languages, Literature, and Art?], which has a little over 100 staff members! That's an enormous amount of work, enough for at least a few independent institutes. That's why, right after the formation of the academy, we intend to take energetic measures to create a number of new humanities institutes — an institute of literature and art, say, and an

institute of history that could include right away archeology and ethnography, and an institute of languages.

SOVETSKAYA TATARIYA: So, the first steps have been taken to set up an Academy of Sciences of Tatarstan: an ukase of the president of Tatar ASSR has confirmed a council of academician-founders consisting of major, prominent science and cultural figures; a statute has been drawn up and published for the elections in the Academy of Sciences of Tatarstan, and that statute defines the sequence for the formation of the academy; the first vacancies have been announced for academicians and corresponding members in the leading fields of learning...

Khasanov: Yes, and over the next two to two and a half months, the elections are slated to take place in two rounds: first the actual members (academicians) will be elected, then the corresponding members. The main requirement of a member of the Academy of Sciences of Tatarstan is, as written in the statute, vigorous creative activity and participation in the development of the economic and spiritual potential of the republic. I am sure that the opening of the academy will serve as a true stimulus for the creative growth of young scientists — after all, each of them will endeavor with his work to win the right to be elected to the Academy of Sciences of Tatarstan.

In a recently published notice, the council of academician-founders announced vacancies for 12 actual members and 41 corresponding members in five departments that are engaged in areas of basic science that are priority areas for Tatarstan. What are those departments? The humanities; biology, medicine, and agriculture; mathematics, mechanics, and machine building; physics, power engineering, and Earth sciences; and chemistry and chemical technology. Based on the moods that exist among those at the science institutions and the VUZes, I can confidently suggest that a good many worthy candidates will be nominated for the announced vacancies, and only the elections will enable us to name those who are most expert and who become members of the Academy of Sciences of Tatarstan.

Then the actual members (academicians) of the Academy of Sciences of Tatarstan, at their general assembly will choose the governing bodies and adopt a charter and other fundamental documents that define the program of its activity. And then the main thing after that will be to set up short-range and long-range goals in priority areas of the development of science in the republic and to determine the means and methods for achieving those goals.

SOVETSKAYA TATARIYA: In its first meeting, the council of academician-founders named you, Mansur Khasanovich, as president and organizer of the Academy of Sciences of Tatarstan. One must assume that, in making their choice, they took into consideration the fact that you are a doctor of philological sciences and a professor and that you have a remarkable talent as an

organizer and a great deal of experience garnered over years of work as an assistant dean, a departmental professor at Kazan State University, and the head of a party obkom department of science and educational institutions.

[Khasanov laughs.]

Khasanov: And certainly that I am today the first deputy prime minister of the republic, a fact of no small import in the solution of many organizational problems associated with the creation of the academy.

SOVETSKAYA TATARIYA: I am sure that you have long been well-known to the overwhelming majority of citizens of Tatarstan: in the many years you worked as deputy prime minister and, since 1984, as first deputy prime minister, you've overseen questions involving culture, science, and education. Not a single measure in those areas — be it the gala opening of a new theater, house of culture, or scientific symposium, or the celebration of the anniversary of a writer or composer — went by without your active participation, without your accompanying words or welcoming words. Your participation in such celebrations, your sitting at the table of the presidium — things that were broadcast on evening television — they were, of course, only the parade side of the medal. The other side of it consists of the constant stress and the hard work. Not to flatter you, Mansur Khasanovich, but for the sake of telling the truth, I want to say to the readers that while on my trips as a journalist, I have never once encountered you wandering around the building sites of rural schools or cultural facilities under erection, and I can personally attest to your superior professional qualities. You have written monographs and scientific treatises on the history of Tatar literature, social thought and culture, and Russo-Tatar literary ties. Tell us, what writers and figures whose work you have studied in detail are represented in your work?

Khasanov: There are quite a few of them, beginning with Kul Gali. There is Kayum Nasyri, and Mardzhani, Tukay, Fatikh Amirkhan, Galiaskar Kamal, Mullanur Vakhitov, Karim Tinchurin, Khadi Taktash.... Of the Russian writers, I've studied Lev Tolstoy, Maksim Gorkiy. I especially love Turgenev, and after him, Aksanov. The Russo-Tatar literary ties at the end of the 19th century and the beginning of the 20th — such is the thread that runs through the series of my articles that have been published in the Pushkin House journals.

SOVETSKAYA TATARIYA: In the years that you have worked in the republic government, you have managed to come in contact with a broad range of people — from actors and artists to cultural officials. There have probably been some meetings that were especially memorable to you in that the people you met were unusual personalities. Are there any episodes that, after all these years, seem to have been amusing or curious?

Khasanov: Yes, of course. One such meeting was with the then-deputy chairman of the RSFSR Council of Ministers, Kochemasov. I had gone to him to "hammer out" a monument to Mullanur Vakhitov for Kazan. I could write a whole story about that in the vein of Zoshchenko, and it would have the absurd and the wicked. It was the permission itself for the monument that had to be hammered out, because Kochemasov was categorically against it from the very beginning. My polemical conversation with him lasted for two hours. He brought out five "concrete" reasons "against," but I managed to debunk them one after the other.

SOVETSKAYA TATARIYA: And so, can we say that the process of forming the Academy of Sciences of Tatarstan is irreversible?

Khasanov: Something like that. The first step is the hardest.

Tatarstan Academy of Sciences Announces Vacancies

927A00724 Kazan SOVETSKAYA TATARIYA in Russian 2 Nov 91 p 3

[Article: "From the Academy of Sciences of Tatarstan"]

[Text] The Council of Founding Academicians of the Academy of Sciences of Tatarstan in accordance with "The Statute on Elections to the Academy of Sciences of Tatarstan," which was published in the press, announces the following vacancies:

four full members (academicians) and eight corresponding members for the **humanities department** (the specialties are philology [linguistics, literary studies, folklore studies, journalism, bibliography, archeography, and textology], history [the history of Tatarstan, the history of the Tatar people, archeology, and ethnography], art criticism and architecture, the philosophy and history of social thought, economic sciences [political economy, economics, planning and organization of the management of the national economy], sociology and political science, state and law [nation-state building], pedagogy and psychology);

two academicians and eight corresponding members for the **biology, medicine, and agriculture department** (the specialties are biophysics, biochemistry, microbiology, general biology, physiology, ecology, traumatology and orthopedics, pediatrics, surgery, veterinary medicine, farming, plant growing, and others);

two academicians and eight corresponding members for the **mathematics, mechanics, and machine building department** (the specialties are mathematics, mechanics, control processes, information technologies, machine building and mechanization, construction);

two academicians and eight corresponding members for the **physics, power engineering, and earth sciences department** (the specialties are physics, astronomy, power engineering, electronics, earth sciences);

two academicians and nine corresponding members for the **chemistry and chemical technology department** (the specialties are chemistry, chemical technology).

The most prominent scientists, who have the academic degree of doctor of sciences and have enriched science with outstanding scientific works and discoveries, are nominated for the vacancies of full members (academicians) of the Tatar SSR Academy of Sciences. Prominent scientists, who have the academic degree of doctor of sciences and have made a significant contribution of the development of science, are nominated for corresponding members of the Tatar SSR Academy of Sciences.

The main duty of the member of the Academy of Sciences of Tatarstan is active creative work at an academic institute, higher educational institution, or sectorial scientific research institute and participation in the development of the economic and spiritual potential of the Tatar SSR.

The right to nominate candidates for full members and corresponding members of the Tatar SSR Academy of Sciences is granted to the council of founding academicians, scientific institutions and higher educational institutions, public scientific organizations, which operate on the territory of Tatarstan and have been registered in accordance with established procedure, as well as to the general meetings of doctors of sciences of the corresponding specialties, the registered membership of which is approved by the council of founders.

Candidates are nominated at meetings of the academic and scientific and technical councils and at meetings of members of scientific societies by a vote (open or secret) by a simple majority of votes. The candidates for full members of the Tatar SSR Academy of Sciences, who did not become full members, can participate in the election of corresponding members without additional nomination.

The names of the candidates for full members (academicians) and corresponding members of the Tatar SSR Academy of Sciences with the appropriate justification are reported in writing to the council of founding academicians of the Tatar SSR Academy of Sciences within one month from the day of the publication of this announcement.

For candidates for full members (academicians) and corresponding members of the Tatar SSR Academy of Sciences it is necessary to attach to the representation the following documents (in duplicate): the protocol of the nomination of the candidate for the announced vacancy; a statement on agreement to participate in the competition; the reference on the creative activity and scientific program of the candidate from the basic place of work; a

list of scientific works (form No. 3.3) with the indication of the works published after the defense of the doctoral dissertation; the personal personnel registration certificate; copies of the diplomas on the graduation from a higher educational institution and of a doctor of sciences, as well as other available domestic and foreign certificates and diplomas (the certificate of a professor, a winner of the Lenin Prize and the State Prize, a winner of prizes of the USSR Council of Ministers and the

USSR Academy of Sciences, an honored figure of science and technology, the author of a scientific discovery, and so forth); a 4.5 by 6 cm photograph (three copies).

The indicated materials are to be sent to the address: 420111, Kazan, Ulitsa Lobachevskiy, 2/31, Room 53. The Council of Founders of the Tatar SSR Academy of Sciences. Telephone numbers: 32-64-91, 32-72-37.

Yeltsin Proposal for Congress of Scientists Criticized

927A0106B Moscow SOVETSKAYA ROSSIYA
in Russian 17 Jan 92 p 3

[Article by Candidate of Economic Sciences Igor Nikolayev under the rubric "Opinion": "Is a Congress of Scientists Needed?"]

[Text] In recent times the idea of holding a congress of scientists of Russia has been gaining strength. At the December general meeting of the Russian Academy of Sciences President Yeltsin supported it. The idea is appealing, it goes without saying. And all the same let us try to analyze it in a weighed and impartial manner.

For this let us take into consideration the experience of the conference of scientists of the scientific institutions of the Russian Academy of Sciences, which was held on 10-12 December of last year. This was the first such measure in the life of the academy. One should attribute to the novelty of the form, apparently, such shortcomings as the frankly weak work of the sections, the excessive confrontation at the plenary meetings, which hindered the work, and the unsatisfactory level of organizational and technical equipment.

However, it is hardly worth focusing attention on these shortcomings. The main thing is, what is, as they say, "the dry residual"? The adopted resolution is of a purely recommendatory nature (incidentally, Academician Ye.P. Velikhov—cochairman of the organizing committee of the conference—repeatedly stressed this). The democratization of academic life is the ultimate goal of the proposed decisions.

Thus, are reforms needed? Of course. But it is one thing when the system is transformed deliberately, and another when it simply collapses due to the exceeding of the "critical mass." It is obvious that the second means will turn into significantly greater costs for science. Was the conference able to elaborate any well-considered suggestions? Yes, the content of the final documents was able to be different (the statement of Academician L.V. Keldysh, for example, is the basis for such an assertion). But in essence these all the same would have been recommendations that do not bind anyone to anything. After all, the conference did not have any clearly defined status. The status of such forums should be set down in the law on science.

The planned congress of scientists of Russia also does not have an official status. It also has to be (if it has to be) reflected in the future law. If we regard the congress as a one-time measure, its status should be specified by the corresponding decision of the Supreme Soviet of Russia or by an ukase of the President.

Does this mean that it is necessary in general to keep the scientific community away from the pursuit of state science and technology policy? No and once again no. It is simply that here, too, it is also necessary to take a

civilized path. For example, having established a council for science under the President and similar councils in organs of state administration of different levels.

U.S., Britain Urged To Hire Nuclear Scientist Emigres

927A0106A Moscow SOVETSKAYA ROSSIYA
in Russian 16 Jan 92 p 3

[Article: "The Shares of Nuclear Scientists Are Growing"]

[Text] Britain and the United States should offer university positions to nuclear scientists from the former Soviet republics, in order to prevent a "brain drain" from the Commonwealth of Independent States to the countries of the Middle East, which are nurturing nuclear ambitions. Such a suggestion was made in the British parliament.

Conservative David Howell noted that the present situation in the Commonwealth of Independent States threatens to lead to the rapid proliferation of nuclear technology in the world. His colleague, Nigel Forman, former parliamentary aide of the Chancellor of the Exchequer, proposed a practical way out of the situation. "If a nuclear scientist or specialist would like to live quietly on a pension, without representing at the same time a threat to peace, it would be far more sensible to offer him a professorship at the University of San Diego or the University of Manchester, in order to spare him from the temptation to leave for warmer regions in search of prosperity and a better future for himself and his family."

Billions Allegedly Wasted on Over-the-Horizon Radar Research

927A0098A Moscow IZVESTIYA (Morning edition)
in Russian 3 Jan 92 p 7

[Article by Corresponding Member of the Russian Academy of Sciences Grigoriy Vasilyevich Kisunko: "The Billions Wasted on Bureaucrats' Vanities"—first two paragraphs are IZVESTIYA introduction]

[Text] The reports of our correspondents B. Reznik and V. Litovkin entitled "The Secrets of a 'Dead' Installation" (Nos 249 and 274 for last year), which tell about the flagrant cases of mismanagement, which were committed by the USSR Ministry of Defense and the USSR Ministry of the Radio Industry, which left to the mercy of fate an expensive military installation, attracted much attention.

M. Gorbachev commissioned N. Trubin, V. Bakatin, and Ye. Shaposhnikov to look carefully into what happened and to call the guilty parties to account. But so far there are no results of this investigation.

In the articles "The Secrets of a 'Dead' Installation," which were published in IZVESTIYA, unfortunately, the

deep secrets of over-the-horizon radar stations—these material monuments of one of the military technical adventures—remained off screen. And this is not surprising, since a powerful ring of collective guarantee stands guard over these secrets under the stamp of fake secrecy.

It would be incorrect to depict these facts only as mismanagement at military installations, which are obsolete and worn out, have been written off, or are to be written off. The fact that crazy, dead-end ideas, which were picked up abroad, were made the basis for the construction of the "Duga" over-the-horizon radar [OTHR] installations and, therefore, the installations being built were from the start, as they say, "not in an arc" [ne v dugu], was the most scandalous thing.

They were stillborn due to their absolute inability to perform the tasks assigned to them on the detection of intercontinental ballistic missiles being launched from the territory of the United States. And precisely for this reason, and not due to imaginary "obsolescence and technical deterioration," the built OTHR installations were not put into service and found themselves in the position of deserted, ownerless stations that no one needs.

The expenditures on the building of the OTHR installations were obviously unproductive. And the truly Great Billion Robbery of the state is hidden namely in them, and not in the transistors, which are picked out of the ownerless equipment by youngsters, and not even in the parts with precious metals, which are plundered from it by adult uncles with an engineering education. As they say, no pains, no gains.

The decisions on the building of the OTHR installations were prepared and adopted in spite of the scientifically substantiated warnings of competent specialists, while these specialists themselves were subjected to severe sanctions. For example, in a directorate of the military client (air defense) Engineer-Colonel Valeriy Zinin was discharged from the Armed Forces with army speed for the fact that he had spoken out against these stations. But then at the NIIDAR [expansion unknown] the authorities had trouble with A. Musatov, chief designer of above-the-horizon radar installations. They discharged him not only from the scientific research institute, but also from staff of the Soviet Army and expelled him from the CPSU with the support of Oleg Belyakov and Igor Dmitriev, members of the staff of the defense departments of the Moscow City Committee and the Central Committee of the CPSU.

In a memorandum submitted to the scientific and technical council of the institute Musatov showed that at OTHR installations the echo signal from the plume exhaust of an intercontinental ballistic missile would be several thousandfold weaker than electronic countermeasure signals and, therefore, it is pointless to build OTHR installations. A "bureau of the scientific and technical council," of which the party organizer of the

scientific research institute, the trade union group organizer, the Komsomol organizer, and other people, who are ignorant about the issue in question, but are to the liking of the authorities, and representatives of the pilot plant became members, was established to review this memorandum. And this "bureau" unanimously—10 against Musatov alone—came out in favor of the building of OTHR installations: The Americans, they said, are building OTHR installations, thus, we also must.

But the Americans had actually "permitted" the leaking of information that they were beginning the building of OTHR installations (TP—the Taylor Project); the transmitting site on the territory of the United States and two receiving sites—on the islands of Cyprus and Taiwan. Moreover, this information was "confirmed" by the rapid development of operations on Cyprus and Taiwan.

This gave V. Markov, director of the NIIDAR, and the leadership of the directorate of the client grounds to launch an entire program of the construction of Soviet OTHR installations. While after the promotion of V. Markov to the position of deputy ministry it was not much trouble for him with the support of Gorshkov, the representative of the military-industrial commission attached to the Council of Ministers, and the military client (air defense) to push the proposals on the building of OTHR installations through to the level of a decree of the CPSU Central Committee and the USSR Council of Ministers.

Meanwhile the Americans, having become convinced that their idea was unpromising, decided to halt the construction of OTHR installations and to turn the receiving centers, which had been built on Cyprus and Taiwan, over to the radio intercept services of the Central Intelligence Agency.

The warnings, which were made in the memorandum of A. Musatov, were completely confirmed when according to the data of the already built OTHR installations the developers submitted the materials of 44 trackings which were supposedly obtained during launches of ballistic missiles. The analysis showed that these were the "trackings" of random bursts of electronic countermeasure signals. In connection with this N. Ogarkov, then chief of the General Staff of USSR Armed Forces, stated at a collegium of the Ministry of Defense that it was impossible to put such OTHR installations into operation.

But even after this V. Markov (from industry) and M. Nenachev (from the client) came forth with the initiative to develop a conceptual design under the code name "Globus," which provided for the building of a network of OTHR installations by the launching of new, even more massive and expensive installations. However, this time not just Musatov, but the entire group of opponents under his chairmanship, half of which was made up of participants in the development of OTHR, spoke out against the "Globus" sequel of "Duga."

Incidentally, this also did not upset the "over-the-horizon" adventurers: The NIIDAR began to tempt the Navy with "Duga," and it is not ruled out that soon we will learn of new dead "installations," but now under the naval flag. The great robbery continues!

...Although the unique collective of the NIIDAR, which was formed for the building of above-the-horizon decimeter radar installations, with the directorship of V. Markov began to switch mainly to empty themes of OTHR, A. Musatov still succeeded in preserving a small subdivision for themes of above-the-horizon radar. The departure of Markov for the position of deputy minister contributed to this. But then he returned again to the director's chair of the NIIDAR, and the conflicts between him and Musatov began to intensify; they ended not only with reprisals against the talented designer, but also with the dispersal of his most skilled assistants in the development of the new generation of radar, which is oriented toward the latest advanced principles and technologies.

The scientific supervision of the building of a new radar installation in the region of Grodno was thus deprived of a leader. As a result the construction of this installation, which was begun in 1982 with a completion date of 1987, turned into a permanent unfinished construction project, just the construction portion of which by the beginning of 1990 had cost the state 200 million rubles [R]. This is another candidate for dead "installations" like the OTHR installations.

Thus the adventure with OTHR installations, in addition to direct material harm to the state, led also to the complete destruction of the scientific and technical potential in the area of the development of above-the-horizon decimeter radar installations. Precisely the band, on which all the radar installations of the U.S. missile attack warning systems operate. While our radar installations of missile attack warning systems have been duplicated in the meter band, which is tenfold more vulnerable, including to blinding by nuclear explosions in near earth space.

But "Duga" is only a part of the spreading of nonsense, which made its way into the problems of antiballistic-missile defense and missile attack warning systems with the arrival of "commissar extraordinary" V. Markov. Of course, the competition of ideas, designs, and programs in science and technology is extremely necessary and very useful, but when one person has simultaneously several titles and positions—deputy minister, general director of a central scientific production association, technical supervisor of a central scientific production association, chief of the Scientific Thematic Center, chairman of the interdepartmental scientific and technical council for antiballistic-missile defense and missile attack warning systems—there can be no talk of any scientific competition.

The monopolist and holder of high-flown titles used them with the support of the defense department of the

CPSU Central Committee, the military-industrial commission, and the Ministry of the Radio Industry as a mandate on behalf of these bodies for uncontrolled freedom in the aggressive commissar command of science and technology policy in the area of antiballistic-missile defense and missile attack warning systems.

For us, I think, such freedom will smack of losses of nearly R1 billion of the people's money and tens of other stillborn "supersecret" installations.

[Box]

Grigoriy Vasilyevich Kisunko. He was born in 1918 and is a veteran of the Great Patriotic War. He is a Lenin Prize Winner. He is a Hero of Socialist Labor and the designer of the first domestic surface-to-air missile systems and antiballistic missile systems. He is the author of a number of scientific monographs.

Ryzhov Interviewed on Collapse of Science Establishment

927A0102A Moscow POISK in Russian No 1 (139),
2 Jan 92 p 5

[Interview with Academician Yuriy Alekseyevich Ryzhov, ambassador plenipotentiary to Paris, by Sergey Leskov under the rubric "Science. What Is the Coming Year Preparing for Us?"; date and place not given: "Academician Yuriy Ryzhov: The Main Task Is To Prevent the Complete Collapse of the Science Community"—first paragraph is POISK introduction]

[Text] Yuriy Ryzhov recently received a new, unexpected appointment—ambassador plenipotentiary to the city of Paris, the capital of most fortunate France. But we are certain: Wherever he lives, he will remain all the same in his thoughts on the land of this long-suffering country. And one of the last interviews of Ryzhov before the "Moscow-Paris" trip was devoted not to the new prestigious appointment, but to the affairs of domestic science, to which more than one decade of his life has been devoted.

[Leskov] Yuriy Alekseyevich, there is no point, apparently, in talking once more about the acute crisis of our science. But then at the end of the year major organizational changes occurred at the Academy of Sciences, its ranks were replenished with fresh forces. Will this reform be a fortunate New Year's gift to our science? Will the changes help to recover from the crisis?

[Ryzhov] It is impossible to tear the problems of the Academy of Sciences from the context of all social life. But what is happening today in society and still awaits it during subsequent upheavals, you will agree, does not evoke particularly optimistic thoughts. And that is why I do not think that the breakup carried out at the academy will change anything appreciably and science will breathe more freely. The main cause of the disastrous situation is the lack of a demand for the potential of

science on the part of society. No reforms in the organizational sphere will change the situation until society feels an interest in the results of scientific research. But since this does not exist, there is no need to be amazed that in our country they heed the voice of science last of all.

Now it is difficult for everyone, but even under such conditions the scale of the reduction of the financing of science stands out from the crowd. To all appearances, soon many scientific research institutes will cease their existence. Of course, we have many institutes, as nowhere in the world. In this case in the West a scientific collective of 10-15 percent can be called an institute. In our country an institution of 200 associates is considered dwarfish. The budget of the most prosperous state would not sustain such an abundance of scientific institutions with, incidentally, the minimum return. And it is not a disaster if saving is introduced in the treasury at their expense. Another bad thing: Together with dependents collectives with a high intellectual potential and deserved prestige in the world scientific community will collapse. The process of collapse is total and does not choose between those who are right and those who are to blame. The worst thing that can happen: The disintegration of science will take on an irreversible nature.

What in this connection awaits the specific average scientist? You do not have to be a prophet to foresee: Many will have to change the sphere of their activity. And those who find such a job, in which they succeed at least in part in using their professional knowledge, will be lucky. Ought one rejoice in this case that the wages are incomparable with academic wages? To find a way to live normally still does not mean to survive as a scientist. There are estimates, according to which the use over a number of years of one's intellect at the level of 20-30 percent leads to the irreversible loss of the professional skill of a specialist. In the future, when opportunities for the revival of science appear, such a person will prove to be irrevocably lost for it.

[Boxed item: Figure. At scientific organizations of Russia 80 percent of the machines and equipment do not correspond to the world level.]

[Leskov] One of the most widespread themes today is the "brain drain" to the West. It seems to me that the attempt to find in this process some positive features for our science is self-deception in a desperate situation....

[Ryzhov] Whatever we say, we do not have real means to slow the "brain drain." Recently in a conversation with American specialists I was confronted with another facet of this problem, about which for the present they are remaining silent in our country, but in the West they are worrying in earnest. There is the real danger that specialists from defense sectors, who for good money will begin to make weapons to the order of totalitarian regimes, will be drawn abroad. We have bred an incredible number of such specialists, the Moscow Aviation Institute imeni

Sergo Ordzhonikidze alone in a year turns out 2,000-3,000 graduates, although not everyone works in this specialization. And today a number of countries, which it is impossible to group with the "civilized world," are displaying definite interest in our specialists who have experience in the development of arms.

[Leskov] Yuriy Alekseyevich, for more than two years you headed the Committee for Science, Culture, and Public Education of the USSR Supreme Soviet. According to my observations, this was one of the most restless, active committees in the parliament and in intellectual level, without a doubt, the most interesting. Could you summarize the activity of the committee?

[Ryzhov] There is no particular need to boast. When in 1989 I took the position of chairman of the committee, there were a large number of diverse far-reaching plans. But quite soon I understood that our parliament was irreversibly entering the stage of death throes. And now I can admit: In spite of the fact that very good people were assembled in the committee and we used every conceivable means, we did not succeed in making in any way appreciably easier the situation of science. The parliament is a rather representative cross-section of our society. While in society, why hide it, there is a couldn't-care-less attitude toward science: Nothing will happen with it, it will wait until better times.

Meanwhile I am convinced that science deserves the same protection as children and education. Given a different attitude toward science we will never return to the civilized world. However splendid the economic reforms are, if society loses sight of the problems of science, all efforts will prove to be fruitless. Simply no one will be able to represent and realize the interests of the state. All world experience testifies: There cannot be a fortunate state without a high intellectual potential.

[Leskov] But it is impossible to seriously expect that the state, which is on the verge of economic bankruptcy, will be able to maintain science on the former, though not particularly generous, budget ration. How is one to feed thousands of sufferers with five loaves of bread?

[Ryzhov] I am not a supporter of the artificial keeping afloat of all scientific directions. And previously during relatively fortunate times it was not worth doing this. We maintained laboratories and entire institutes in practically all the directions known to world science. As a result the meager assets were spread on an enormous "sandwich." Such a principle of the financing of science is faulty from the start. According to world standards, only the fields of science, which were connected with ideology (although this research was not closely related to science in the traditional understanding) and with the military-industrial complex, survived.

[Boxed item: Quotation. "American, European, and Japanese companies today are combing the former USSR in search of new technologies, counting on reaping a profit at the expense of the urgent need of Soviet scientific

institutions for hard currency and their lack of commercial experience." Steven Asdin, an American journalist]

I think that in the present crisis it is necessary to make an accurate selection of the directions of priority importance and to keep the financing in them at a decent level. Of course, here already today our achievements should be comparable to the world level. These are, first of all, theoretical physics and mathematics, which do not require considerable financing. One must also not sacrifice the fields, in which a powerful experimental base has been established, it is necessary to maintain it at the proper level so that expensive installations and stands would not go to ruin. Plasma physics, thermonuclear fusion, and aerohydrodynamics are in this rank. It would be thoughtless wastefulness to allow the unique experimental base, in which society invested considerable effort and assets, to fall into a state of neglect.

[Leskov] Perhaps no field has given rise in recent times to such intense disputes as cosmonautics. From its unrestrained extolling during the years of stagnation some critics have switched to just as categorical rejection. What do you think, is it worth further, to use a colloquial expression, "throwing money away on space"?

[Ryzhov] An entire anthology of domestic cosmonautics, which was written by Yaroslav Golovanin, was recently published in IZVESTIYA. In spite of the extremely glib tone, in many respects one has to agree with the author. Our cosmonautics cannot go on living without a program, being oriented toward the sudden insight of the general designers, which most often of all is based on considerations of momentary advantage. It is necessary to study more carefully the commercial possibilities of cosmonautics. On the management level the organization under the Russian Government of a space agency like the American National Aeronautics and Space Administration provides a chance for the realization of the enormous potential that has been incorporated in the sector. And this agency should combine, just as the National Aeronautics and Space Administration, the interests of aeronautics and cosmonautics. For 1992 it is necessary to propose specific practical programs that will not allow this promising sector to collapse. A unified body like the European Space Agency should be established for the management of cosmonautics on the international level. I do not know, it is true, whether we are mature enough for such coordination on the socio-economic level.

[Leskov] To make forecasts, especially during so unstable a period as the present one, is a risky business. And all the same, Yuriy Alekseyevich, how much longer is science to be among the outsiders and will its abundant potential remain unneeded by our society?

[Ryzhov] If we manage without considerable blood, there is the chance that in two to three years the applied sciences, which will be able to offer a specific product—new materials, new technologies—will begin to recover. I am hoping for the support of the new generation of

wealthy and, preferably, civilized entrepreneurs. Revival is possible in economic science, which until now simply did not exist owing to its ideological crushing. Developments in ecology may become essentially inevitable. Thus far we still do not realize the scale of this problem and are putting it off until tomorrow. But who knows, perhaps a second Chernobyl is already approaching in a completely different area. On the whole the forecast is dismal: Society will not display soon concern for the preservation of its intellectual potential.

[Leskov] What steps could, in our opinion, prove useful on the organizational level?

[Ryzhov] Scientists should try to establish structures that would help the government in examination with allowance made for the economic possibilities of society. It is necessary to make efforts in order to get their recommendations to the people who make crucial decisions. Steps on the material and moral support of science are necessary. In spite of all the complications, the government should have enough wisdom to finance science and to protect it against complete and irreversible disintegration.

[Leskov] Politicians by their nature are optimists, otherwise it is no use engaging in getting life in order. And nevertheless in recent times the majority of politicians of the democratic camp, you, it seems, included, have been inclined to pessimistic forecasts. What influenced your frame of mind in so basic a way?

[Ryzhov] The belated realization of the quality of our society, which we were inclined to overestimate, came. Morals, ethics, the genetic level—everything proved to be corrupted far more than it seemed at the beginning of perestroika. The union parliament was disappointing. At most a third of the deputies, from my observations, were capable of intelligent decisions. The results of the voting confirm this ratio: Not more than 700-800 deputies at the congresses supported reasonable proposals. I am afraid of being mistaken, but the Russian parliament, though distinguished by the inclination for more radical decisions, as a whole remains a representative sample of our society.

Of course, situations that are irresolvable on a historical scale do not occur, and an end comes to every period of instability. If we could only avoid dramatic cataclysms on this path...

[Boxed item: Fact. The effectiveness of science depends directly on its overall financing. During the past year in the United States and Germany it increased (with an increase of monetary injections), while in England and Canada it decreased (with the reduction of financial support). But there is no need to talk about our science—as it is, everything is clear.]

Although, you know, even during the present difficult times many of my colleagues are thinking no so much about politics—thus, they will talk about it at odd moments—as about purely scientific ideas. And, what is

amazing, a large number of interesting suggestions are being expressed. But only time will tell whether they will be implemented.

Nuclear Society Concerned Over Future of Nuclear Programs

927A0096A Moscow *IZVESTIYA* in Russian 2 Jan 92 pp 1, 2

[Article by *IZVESTIYA* correspondent Andrey Illesh: "The Crisis of Society Is Hitting Everyone, Including Nuclear Power Plants"—first paragraph is *IZVESTIYA* introduction]

[Text] The crisis of society is hitting everyone, including nuclear power plants, the most qualified scientists, who have been united in the Nuclear Society, believe. They, foreseeing new dangers, sent a letter to 11 presidents of the sovereign republics.

To begin with: The Nuclear Society is an independent public organization which united specialists who work in the field of nuclear science and technology in Russia, Ukraine, Belarus, Georgia, Latvia, Armenia, Lithuania, Kazakhstan, Azerbaijan, Kyrgyzstan, Uzbekistan, and Moldova. So the address of the letter—to all the presidents—not only is politically justified, but also entirely logical.

The subject of alarm of the most prominent nuclear specialists of the former USSR is the present and future of nuclear science, nuclear technology, and the atomic industry in the countries of the Commonwealth. The atomic industry, which was developed during the postwar years, had one goal—to guarantee the defense potential of the country. But later a metamorphosis occurred: Nuclear power engineering emerged on its basis. Peaceful nuclear power engineering. This is an example of very effective conversion. But if we take a look at the future, it is possible, without indulging too much in fantasies, say: In this way it is possible to solve the energy problems of the national economy on the territory of the collapsed country. For today 46 nuclear power-generating units with an installed capacity of 37 gigawatts are operating in the USSR (even though it has disappeared politically). They are operating on the territory of Russia, Ukraine, and Lithuania. While the assets of nuclear power engineering are worth (both in rubles and in dollars) billions.

Alas, when developing nuclear power engineering, in the USSR they did not consider its fundamental peculiarities. And first of all the dangers that lurk here. The national economy was not prepared to accept high technology due to the low educational and technical level of the performers and the chaos, which traditionally replaces technological discipline in our country. The result: the Chernobyl catastrophe and the complete rejection by society of the building of new nuclear electric power plants. But hunger is no lady. And the realities of today's situation are again raising the question of the role

of the atomic industry and science in the solution of the problems of society, which is sliding into the abyss.

Nuclear power engineering can be one of the stabilizing factors of the power situation of the Commonwealth, the specialists believe. And their estimations are confirmed by very harsh reality. I will venture just two examples.

Armenia. Here the disconnection of users on a significant scale began back in the fall. In October hundreds of industrial enterprises were already without electric power. By an order of the government restrictions in the operation of television were introduced, the lighting of cities and settlements was cut back. At that time they agreed to an extreme step—to ensure the operation of hydroelectric power plants they released some of the water from Lake Sevan.... Finally there was an unprecedented decision—to put back into operation the Armenian Nuclear Power Plant, which was shut down at the demand of the public in 1989 after an earthquake, although its basic installations at that time were not seriously damaged.

Ukraine. Here it has been officially declared: There is a state of emergency in power engineering. Miners' strikes, the instability of the operation of enterprises of the coal industry.... The result: More than 3.5 million tons of coal failed to be obtained, and, therefore, several units of plants with a total capacity of 2.5 million kilowatts were shut down. And in the republic they have cut the delivery of power to enterprises and organizations by 15 percent and its export by 20 percent.

But everything listed, alas, is only a part of the enormous problem that has arisen on the ruins of the former state measuring one-sixth of the earth's dry land.

The State Committee for Safety in the Atomic Power Industry is an organization, the prospects of which are extremely important for the safety of the operation of nuclear electric power plants. Here they are convinced that nuclear power plants, in spite of everything, in recent times have been operating reliably. But alarming reports are also being received from there. It is a matter of incidents at the Balakovo Plant: on 27 December at the second power-generating unit, and on 28 December at the first power-generating unit. Fortunately, no radiation effects occurred. But it is difficult to say what will be next in case of such economic and social instability. However, without resorting to guessing, it is possible all the same to forecast something.

Under the conditions of the breakup of the country the basic task of the nuclear power complex is to ensure the stability of the functioning and, what is the main thing, the safety of operating installations of nuclear power engineering. However, it is possible to accomplish this only in case of the maintenance and strengthening of the necessary ties of the atomic industry complex, which is located on the territory of practically all the members of the Commonwealth. I personally believe: It is the business of politicians and specialists to draft immediately the corresponding interstate agreements, which promote

the integration of the nuclear space, and the documents, which will define the safety of nuclear power engineering. I am convinced: The republics singly will not endure all the difficult, expensive, and dangerous work. Moreover, one must not forget that, having changed the name of the country, we are bound all the same to meet the international obligations that we have assumed....

Today all this is not simply urgent. Attention to peaceful nuclear programs is concern for the life of each of us. Alas, during any and the transition period (read during the period of anarchy) changes in the structure of the management of the most hazardous nuclear power complex are not a joke. Now the owners of nuclear power plants are changing, new inspection and regulatory structures are being set up, and energetic, but, unfortunately, not always competent people are coming. Here the danger of "dead time"—when some structures have already ceased to function, but others have not yet been formed—arises. Thus, this "dead time" should not leave behind completely real cemeteries. The energy crisis, which has been multiplied by irresponsibility, can lead to an explosion. A nuclear explosion.

Market Economy Endangers Publication of Scientific Works

927A0093A Moscow *IZVESTIYA* (Union edition)
in Russian 28 Dec 91 p 10

[Article by Doctor of Philosophical Sciences Prof. V. Bazhanov (Kazan): "The Democrats Are Destroying What Remained Intact After Stalin"]

[Text] Many people are now sadly pining for the ever increasing brain drain abroad. Something, it would seem, should be done to decrease the squandering of the intellectual potential of the nation. Indeed, Ukase No. 1 of the President of Russia touches upon namely this vital problem—the survival of the intellectual gene pool of Russians.

It is not at all a matter of creating some "hothouse" conditions for scientists and teachers, but only a matter of seeing to it that they would not feel that they are deficient with respect to other, more well-to-do strata of society. Russian scientists, believe me, have not been spoiled by attention of the state and have not been corrupted by its generosity. However, scientists should be provided with normal working conditions. The point of the life of any person of science is to share with the scientific community the results of his work, that is, to have if only the opportunity to publish his works freely. And it is here that we, it appears, are faced with an extraordinary situation, which is ready to turn into a tragic situation.

The peculiarity of this situation consists in the fact that they are beginning to demand money, moreover, a lot of money, from scientists for the opportunity to publish their works. Even during the post-October period (a no less difficult period than the one which we are now going

through) such a demand was not made. Although published on paper of worse quality and in smaller editions, scientific books all the same were published, and no one pondered (at any rate in earnest) over the immediate profitability of academic publications. Now such an idea has appeared among bureaucrats from science and has begun to be implemented. In the event of successful implementation science in Russia will die, and the brain drain will turn—one need not doubt this—into a stream of brains, which, together with petroleum, gold, and diamonds, heads for the West.

And this is not idle talk.

The central academy publishing house—Nauka—has already included in the content of contracts, which precede the publication of scientific books, paragraphs on the reimbursement of the losses from their publication, which means, in essence, the end of Russian science. Do the people, who issued such instructions, really not know in what a state academic institutes and higher educational institution are? That they have a catastrophic lack of assets even for the purchase of Soviet (not to mention foreign) publications? From where will they get the tens of thousands of rubles, which are necessary for editions of a new book?

I know all the urgency of the situation, as they say, from my own experience. Prof. A.P. Shirokov and I prepared for publication at Nauka the book of A.V. Vasiliev about N.I. Lobachevskiy—the most substantial book, very likely, of those published about Lobachevskiy, and, moreover, the printing of which was completely destroyed in 1929 (only the proof was miraculously preserved). The year 1992 is the year of the 200th anniversary of the birth of the brilliant mathematician who made Russia famous, which has been declared by UNESCO the year of Lobachevskiy. The workers of the Nauka Publishing House treated the preparation of the manuscript as it befits to treat works of this sort. And here is the news: Given a printing of a little less than 5,000 copies (although there were substantially more orders) the publishing house is incurring losses of 23,000 rubles. And it is being suggested that we (or Kazan University) make them good. It appears that the book, which was already once destroyed by the Stalin regime, has the chance of being destroyed again, but now by the democratic society that is being built. Nearly all the books, which are being prepared for publication at Nauka, are in a similar position.

I want to return to that with which I began. If a change of mind is not made in time, the consequences for Russian science and for the scientific community of Russia will be most disastrous. Basic science should be in the interested minds and hands of the Russian leadership, which understands its importance for the revival of the nation and the state.

Chairman of Ukrainian S&T Progress Committee Interviewed

927A0101A Kiev HOLOS UKRAYINY in Ukrainian
19 Dec 91 p 14

[Interview with Chairman, Ukrainian Cabinet of Ministers' Committee on S&T Progress (CSTP), Doctor of Physical Mathematical Sciences Professor Sergiy Ryabchenko, conducted by HOLOS UKRAYINY reporter Kateryna Kindras, under the "Science (Urgent)" rubric: "Progress Committee in Chaos Kingdom"; first three paragraphs are HOLOS UKRAYINY introduction]

[Text] Of all the pyramids of the command and administration system, the science pyramid was the highest. A group, laboratory, sector, branch, NDI [scientific research institute], Main Administration, Ministry, Academy of Sciences, Derzhnauky [State Committee for Science and Technology]...

The Cheops pyramid became one of the Seven World's Wonders, but the science pyramid has become an oddity in a heap of such oddities in the total absurdity society. Under this management system scientific search and its effectiveness became a profanation, and numerous NDIs became institutions working for themselves. Besides, sons and sons-in-law of big shots were finding a cozy shelter in such "companies". Probably, this is why common people have been calling scientists "loafers". But was it fair? Is it scientists' or the system's fault that the national economy of Ukraine waited in vain to get proper effect from their work?

Ukraine's getting back its independence makes it possible at last to start a real reform of science. The first step is the creation of the Ukrainian Cabinet of Ministers' Committee on S&T Progress (CSTP). Its Chairman, Doctor of Physical Mathematical Sciences Professor Sergiy Ryabchenko has granted "Holos Ukrayiny" an interview.

"Sergiy Mykhaylovych, was it necessary to create an S&T Progress Committee in Ukraine?"

"Such organization did exist in Ukraine 15 or 20 years ago, but the Republic's government was then a puppet and was actually translating Moscow's State and political orders to Ukrainian expanse."

At present the S&T Progress Committee has been created under entirely different conditions, both political and economic. Its mission is to serve entirely different objectives. First of all, the CSTP assignment is to form and support Ukraine's State S&T policy. Although the staff has not been fully manned, we have certain accomplishments - we held a conference of representatives of Republic's scientific research organizations, where we discussed the question of creating the National S&T Council and actually started its operation. We also organized a meeting of representatives of independent States (former USSR Republics) on problems of interstate cooperation; as a result of this meeting we have

prepared, with participation of experts from other Republics, a draft of a corresponding agreement, etc.

In other words, the Committee has begun active work on determining Ukrainian State priorities in development of science and technology and creating mechanisms for providing economic and legal guarantees of development of S&T activity."

"You have moved from a chair in the Union's Supreme Soviet, where you worked as Deputy Chairman of the Commission on Problems of Science and Technology, to a Republican chair - the position of Chairman of the S&T Progress Committee. Don't you think that it was the vertical structure of management from the Center that caused the decline of Republican science?"

"The largest problem is that up until now Ukraine did not have its own science policy, because it was a constituent part of the Union. And the Union was not a union of States, but rather a totalitarian empire, and not just nationally. If, for instance, we take the USA as an example, we shall see, after analyzing the science structure of that State, that they do not draw all America's scientific potential to Washington, D.C., or New York. For instance, California exists as an independent eastern [per original] science center, and Michigan is the northern science center. There are outstanding science centers in small towns too. And people working in these centers are no less talented than those in New York or Washington, D.C. Scientists there do not have the provinciality or low-worthiness complex. Thence the return.

But within the former USSR we were beggars. Out of the financial ration allocated to State S&T programs 91 percent was given to the Russian Federation (including over 30 percent to Moscow and Moscow oblast and somewhat less to Leningrad), only 6 percent to Ukraine, and 3 percent to the remaining Republics. And this is while Ukraine was contributing almost 18 percent to the gross national product. In other words, unambiguously - a centralized science management structure is evil.

But self-isolation, which will result in narrow specialization and small-village mentality, is also dangerous. In order to clarify our relations with the former Union, a conference of representatives of sovereign States on problems of interstate S&T cooperation took place in September on Committee's initiative. A draft of the agreement on such cooperation is now being prepared for signing. In addition, a draft of the Statute of the Interstate S&T Council, which will coordinate S&T cooperation of the States, has been discussed. In other words, that managerial vertical must become a system of coordinated horizontals, while relations between scientists of the former Union must become nothing but direct."

"At present, during the transitional period, former structures (Derzhkomnauky [USSR State Committee for Science and Technology], Derzhkomvynakhodiv [USSR State Committee for Inventions and Discoveries], Derzhstandart [USSR State Committee for Standards],

and VAK [All-Union Certification Commission]), which did manage science, albeit poorly, have actually stopped functioning. And scientists are in despair. The impression is that nowadays absolute chaos reigns. How can the S&T Progress Committee reassure them?"

"Just now a Session of the Ukraine Supreme Soviet has approved in the first hearing a draft of the Law "On Principles of the State S&T Policy", which will straighten a creative person's wings. A lot of things had been turned upside down in our State, including treatment of scientists and inventors. We do not even have any criteria for evaluation of intellectual work. This is probably due to the fact that in the Union intellect never was considered capital. In the civilized word a person's right to his or her invention is protected. The State is not the owner of the invention - it is only the guarantor of the author's right.

"Last month I participated in an interstate conference on problems of organization of patent affairs. At present a provisional agreement on these problems has been prepared. But very shortly we shall bring up before our Government the question of creating the Ukrainian patent service.

"As far as VAK is concerned, I for one think that we should take the route that has been tested by the world science. In highly developed Western countries scientific degrees and academic ranks are conferred by scientific councils of scientific research institutions or VUZs. A scientist there is not Professor, but Professor of the scientific institution where he or she was awarded the rank."

"Sergiy Mykhaylovych, you mentioned that the draft of the new law will protect a creative person. But the problem is that probably there are no criteria that would clearly distinguish between creativity and hackwork. Apparently, this is one of many ponderable reasons of inefficiency of a large number of our NDIs, where as a result of excessive overstaffing science, while eating up tremendous resources, in the end gives almost nothing back to the society, isn't it?"

"I would like to disagree with this statement of the problem, although it is based on public opinion that is fairly typical in the USSR. Most often it stems from ignorance. To determine the level of effectiveness of a scientific work one must be a specialist in the field. Science, like art, needs be understood. For instance, far from anybody can understand works by Chagall, Picasso, Pirosmani.... Besides, in addition to flights of creativity, science also entails dull work.

"Science should be considered in its integrity. Look how "overstaffed" are laboratories of giants such as DuPont, McDonnell-Douglas, Bell Telephone and IBM. The end result of work of these huge collectives justifies their existence hundred-fold, while competition gives companies the incentive to use scientific achievements".

"But lately even President of the Ukrainian Academy of Sciences Boris Paton admitted that there are institutes in the Republic such that nobody would notice if they were closed all of a sudden. Apparently, it has become necessary to review the expediency of existence of not just certain NDIs, but also of entire scientific directions, hasn't it?"

"To be sure, there are a lot of loafers in our science, as in other spheres of our society. They are being begot by the lack of proper evaluation of creative work and by wage-leveling. But more often, low efficiency is a consequence of poor resource and equipment support. When one considers scientific potential of Ukraine as a whole, it becomes clear that it is insufficient for satisfying the demand of Ukraine's development. And the main reason for that is the center-aimed vertical, which must be radically changed. We are talking not only about reshuffling at the former Union level. Comprehensive structural changes in the very organization of science are needed, and first of all it is necessary to balance the scientific and economic potential. And to do this Ukraine needs to double or triple relative science expenditures, first of all in order to create an effective investment mechanism. And science directions in a competitive environment will be determined using a system of contests. To conduct this work, the National Council on Science and Technology has been created.

"When we state that the socialist system has lost the competition with capitalism, the cause of this fiasco is its inability to implement progressive scientific ideas. If we want to join finally the new free family of European peoples, we must not forget this history lesson."

Western Disinformation Knocks Russian Science Off Course

927A0105A Moscow RADIKAL in Russian No 49-50.
18 Dec 91 p 6

[Article by Candidate of Philosophical Sciences Yuriy Orfeyev under the rubric "The Derivation of the Essence": "Folk Science Is on the March"—first five paragraphs are RADIKAL introduction]

[Text] At all times something always swarmed near science. Various historians and scientologists understood and called this "something" in different ways: parascience, underscience, alternative science, folk science (or "popular science"), pseudoscience, mock-science, immature science.... During times of crisis the "something," as a rule, experiences as kind of population explosion. And this becomes dangerous to health—personal and social. On both levels the schizoization of consciousness occurs. Inadequacy is promoted almost to the norm.

Unhealthy, uneducated public opinion is a very dangerous thing. Especially today. Especially in our country.

The theme of false knowledge, free or involuntary substitution, mimicry, the selfish or naive claim to some supreme knowledge—this theme is vast and multifaceted.

Today we present one of its innumerable aspects.

"Thus pseudointellectuals, who cannot have merits: They simply do not exist, or they no longer exist, are penetrating more and more intellectual life, which by its very essence requires and presumes high merits."

Jose Ortega y Gasset, Revolt of the Masses.

"Disinfo" Is a Lie, and in It There Is a Hint....

The cold war has ended, and the Americans—indeed there is nothing secret that would...—have openly admitted that for decades they conducted a goal-oriented strategy of scientific disinformation.

This program of efforts on disinformation provided for the pursuit by a large number of U.S. governmental agencies of a carefully coordinated policy in the area of advertising publications, editions of scientific and technical materials, statements and interviews of officials, and so forth. The question of the need for a goal-oriented campaign of scientific and technical disinformation was discussed for a rather long time in U.S. governmental circles. Its goal is the provision of the USSR with completely or partially fabricated information, which would force it to take countermeasures and to make counter decisions, on the basis of false premises, and would lead to futile expenditures of enormous amounts of money. I think that comments on these statements are unnecessary. What is the result of the effect of this disinformation on the minds of our specialists? I am sure that the company had success. Here is one of the examples.

Several years ago our secret scientific research institutes conducted intensive work on the development of microwave weapons for air defense. An idea, which at very glance is very appealing, but is technically absurd, was at its basis: the destruction of the warheads of missiles not by antiballistic missiles, but by focused radio waves in the microwave band. Gigantic capacities, which exceed by a thousandfold the sum of the capacities of all the electric power plants of earth, are needed for actually operational microwave weapons. But nevertheless we spent hundreds of millions of rubles on this absurd project.

Why was the dead-end nature of the project recognized so late? Skillfully organized disinformation played a large role in this, the management of the project through intelligence services obtained even a description of the patents issued in the United States, which it took at face value.

It is possible to extend the number of similar examples. Our military science proved to be unprotected in the face

of disinformation. Although the use of the strategy of disinformation in this sphere is typical and has a long-standing tradition.

Moreover, as became known, at the USSR Academy of Sciences they nominated and elected to special vacancies of academicians the leaders of dead-end research of this sort.

And still the level and maturity of the natural and technical sciences are rather high, they and their leaders are capable of making out traps. Therefore, the direct disinformation in one way or another was recognized, its negative impact was localized.

But this is where reliable methods of monitoring the quality of scientific research and development and evaluating the adequacy of proposed methods formed long ago. The immature sciences are in a more complicated situation when confronted with disinformation and intentional or unintentional falsification.

Th Danger Zone

The criterion of the maturity of one science or another, of course, is relative and historically dynamic. Thus, up until the development of molecular biology they grouped biological science with the immature sciences. Jerome Ravetz, a well-known American historian of science, also regards as immature the economic sciences, sociology, psychology, and the entire set of sciences on the management of social systems. We will not discuss now the question of whether these sciences can with time become just as mature sciences as physics and chemistry. Let us merely note that disputes about the very object of research, as well as the constant struggle of schools, directions, and paradigms are typical of immature sciences. The leaders and followers of one school might not acknowledge even the facts that have been derived by the followers of other schools. While the experimental verification of hypotheses and facts in these sciences is complicated by all kinds of side effects, such as the placebo effect, the effect of the unintentional hopes of the experimenter, the effect of the self-fulfillment of prophecies, and so forth. In other words, the personality of the scientist himself and even the expectations of results from a fashionable scientific direction of the very members of the scientific community have a significant influence on the evaluation of the reliability of one hypothesis or another and on the utility of one method or another. The immature sciences scarcely accumulate generally recognized facts and do not establish scientific schools—the latter usually disappear with the death of their leaders.

Finally, precisely the immature sciences are susceptible to the influence of all kinds of science-like myths and phantoms. Ingenious, enterprising businessmen in response to the urgent requests of practice are capable of developing vigorous activity within their framework, of establishing an entire empire of false knowledge, and of acquiring real power and prestige.

An example of this is positivistic systems analysis in economics.

The immature sciences can also conceal the criminal pretensions of individuals or even social groups—particularly under the conditions of the industrialization of science and the decline of the critical activity of the scientific community. Very dangerous excesses can appear in case of the mobilization of the immature sciences for the solution of practical problems. This often leads to the deception of society and themselves and to the distrust of science in general. In short, the immature sciences form a kind of danger zone—a zone of risk.

The immature sciences, which have been mobilized for the solution of practical problems, function in social consciousness as folk science, as a kind of kitsch of science, cliche science—a new edition of such ancient pseudosciences as alchemy, astrology, phytognomy (the description of the medicinal properties of plants according to their external shapes, which goes back to folklore motifs), and so forth. As is known, the success of these sciences, their usefulness depends mainly on the faith, more precisely, the credulity of the clients. Under the conditions of the mobilization of the immature sciences for the solution of practical problems the tension of political passions is so great and the stakes in the game are so great that a boy, who dares to say: "But the emperor has no clothes on!" will far from always be found. Even if critical voices are heard, they will always be accused of being reactionaries or of some other offense.

Folk science usually promotes erroneous or immature concepts, taking up one or another "new" scientific direction, and in this case expands groundlessly the sphere of applicability of some scientific concepts or others, vulgarizing them up to the most wild distortions. Such, for example, is the fate of the deformed double of Darwinism—"social Darwinism."

Genetics also has its "folk-science" double—eugenics. The views of Lysenko with good reason can also be assigned to "folk science."

If the United States Had Supported Lysenko....

Much literature in our country has been devoted to the person of Lysenko, but nevertheless it makes sense to return to this once again. His ascent was connected, first of all, with the most urgent need of government leaders to increase rapidly the productivity of kolkhoz fields. When the question of increasing the productivity was

posed to classical geneticists, they were cautious and responsible. They required 10 years for this. Lysenko proposed a quick solution which coincided with the spirit of Bolshevism and its representatives. (The leaders of immature fields also require large-scale research for the solution of practical problems, pull tens of thousands of people into the orbit of their influence, and corrupt the usual social mechanism of checking the quality of scientific research.)

The marriage, which was contracted between the folk-science views of Lysenko and his Bolshevik patrons, safeguarded him against the control of the scientific community, while success was ensured by the mechanisms of self-fulfilling expectation-prophecies. His patrons wanted or were forced always to interpret the results of his work as a success, moreover, Lysenko skillfully presented his ideas in Marxist attire.

Now let us assume that scientific journals and laboratories, which developed further the ideas of people's academician T. Lysenko, had been established in the United States in the 1950's. And even better, a committee in his defense. I think that we would have to this day very nearly an entire USSR Academy of Sciences which was filled with his supporters—with the corresponding scientific research institutes—while his funeral in its magnificence would not have been inferior to the funeral of some member of the Politburo.

Why did the centers of disinformation of the United States not support this direction? At that time, perhaps, they had not yet found this fruitful vein, but most likely there, too, they were not without miscalculations. The struggle of folk science and genuine science always outgrows the ideologically neutral framework and has broad social repercussions.

Incidentally, for the sake of fairness our journalism approaches too unequivocally the person of Lysenko, describing him only as a mock scientist, a scoundrel, and so forth. But he is still the author of the theory of the development of plants by stages, a very useful theory. And here Lysenko was precisely at his best, he played the role in plant growing, which Piaget played in psychology, having developed the stage theory of the development of child intelligence. Therefore, it is necessary to understand the person of Lysenko within the framework of the folk-science direction which he headed.

But the folk-science delusions for our society, of course, did not end with the exposure of Lysenko and his school. And so, the dangers, with which we began, also exist.

Nominations for RSFSR State Prizes for S&T Announced

927A0129A Moscow ROSSIYSKAYA GAZETA
in Russian 24 Feb 92 p 2

[Article: "From the Committee for State Prizes of Russia in Science and Technology"]

[Text] The Committee for State Prizes of Russia in Science and Technology reports that the following works have been allowed to participate in the competition for the 1992 State Prizes:

1. G.P. Zarayskiy, V.A. Zharikov, F.M. Stoyanovskaya, V.N. Balashov. *Eksperimentalnoye issledovaniye bimetasomaticeskogo skarnoobrazovaniya* (*The Experimental Study of Bimetasomatic Skarn Formation*) (monograph).

Nominated by the Institute of Experimental Mineralogy of the Russian Academy of Sciences.

The Institute of Mineralogy, Geochemistry, and Crystal Chemistry of Rare Elements at the address: 121357, Moscow, Ulitsa Veresayeva, 15, is holding the public discussion. Telephone number for inquiries: 443-84-49.

2. A.I. Zhukov, O.M. Ilyashenko, I.F. Kotlyarov, L.M. Maltabar, N.N. Perov, P.P. Radchevskiy. "The Development and Introduction of the Technology of the Grafted Crop of Grapes in Russia."

Nominated by the Sady Kubani Scientific Production Association of the Russian Academy of Agriculture.

The Scientific Research Institute of Grapes and the Products of Their Processing "Magarach" at the address: 334200, Crimean Oblast, Yalta, Ulitsa Kirova, 31, is holding the public discussion. Telephone number for inquiries: 32-62-44.

3. O.N. Migina, M.I. Sukhova, G.K. Arshina. "Cucumber Strains That Are Weakly Susceptible to *Peronospora* Mold."

Nominated by the Far Eastern Scientific Research Institute of Agriculture of the Russian Academy of Agricultural Sciences.

The All-Union Scientific Research Institute of the Selection and Seed Growing of Vegetable Crops at the address: 143090, Moscow Oblast, Odintsovskiy Rayon, Lesnoy Gorodok post office department, is holding the public discussion. Telephone number for inquiries: 593-52-26.

4. V.S. Savelyev, Ye.G. Yablokov, V.I. Prokubovskiy, A.I. Kiriyenko, S.M. Kolodiya, A.A. Smirnova, A.A. Matyushenko, A.O. Virganskiy. "The Development and Introduction in Practice of New Methods of the Prevention and Treatment of Thromboembolisms of the Pulmonary Artery."

Nominated by the Russian State Medical University.

The Moscow Oblast Scientific Resesarch Institute of Clinical Medicine imeni M.F. Vladimirskiy at the address: 129110, Moscow, Ulitsa Shchepkina, 61/2, is holding the public discussion. Telephone number for inquiries: 281-93-90.

5. V.S. Alfeyev, Z.V. Borisovskaya, A.A. Vasilyev, B.K. Kuryatnikov, V.I. Lobanov, L.G. Makarov, Ye.A. Matyushevskiy, I.A. Shelayev. "The Development and Production of Economical Superconducting Magnets for High Energy Accelerators."

Nominated by the Joint Institute for Nuclear Research, Dubna.

The Scientific Research Institute of Electrophysical Apparatus imeni D.V. Yefremov at the address: 188631, St. Petersburg, the Scientific Research Institute of Electrophysical Apparatus imeni D.V. Yefremov, is holding the public discussion. Telephone number for inquiries: 265-60-48.

6. V.A. Vishnevskiy, V.I. Alperovich, A.M. Granov, A.K. Yeramishantsev, V.A. Zhuravlev, V.S. Shapkin. "The Development and Introduction in Clinical Practice of Effective Methods of the Diagnosis and Surgical Treatment of Kidney Diseases" (a series of works).

Nominated by the Institute of Surgery imeni A.V. Vishnevskiy.

The Moscow Medical Academy imeni I.M. Sechenov at the address: 119881, Moscow, Pogodinskaya, 11, is holding the public discussion. Telephone number for inquiries: 248-04-37.

7. F.I. Komarov, V.Kh. Vasilenko, A.L. Grebenev, Ye.I. Zaytseva, V.T. Ivashkin, L.P. Myagkova, S.I. Rapoport, A.A. Sheptulin. "The Comprehensive Elaboration of the Questions of the Etiology, Pathogenesis, and Diagnosis of Ulcers and the Introduction of New Methods of Their Conservative Treatment."

Nominated by the Moscow Medical Academy imeni I.M. Sechenov.

The Russian State Medical University at the address: 117869, Moscow, Ulitsa Ostrovityanova, 1, is holding the public discussion. Telephone number for inquiries: 434-84-64.

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Nominated by Moscow State University imeni M.V. Lomonosov.

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Nominated by the Dagestan SSR Council of Ministers.

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